

DELAWARE STATE MEDICAL JOURNAL

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NUMBER 1

SYMPOSIUM ON HYPERTENSION

EVALUATION

Pennsylvania Hospital

MANAGEMENT

University of Pennsylvania

Complete Contents on Page 30

QUIETS AN AGITATED COUGH REFLEX

• SYRUP

DOLOPHINE HYDROCHLORIDE

(Methadone Hydrochloride, Lilly)

more effective in smaller doses than opium derivatives

Dosage: 1 teaspoonful; repeated only when necessary.

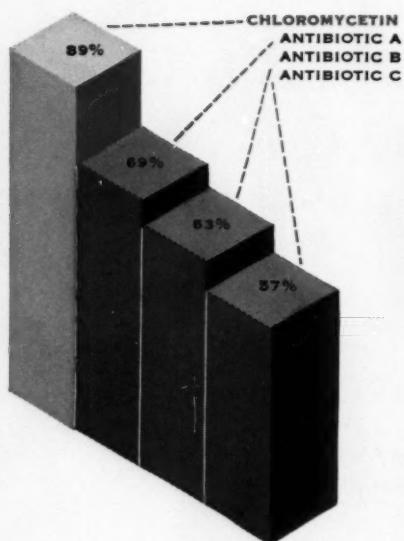
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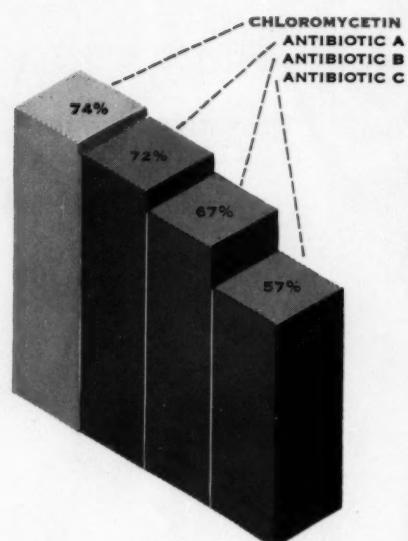
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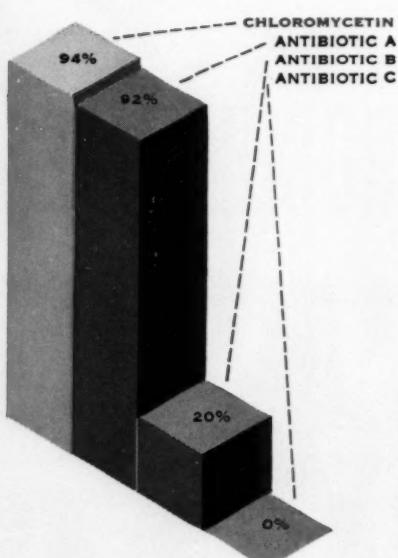
SENSITIVITY OF COMMON PATHOGENS TO CHLOROMYCETIN AND THREE OTHER MAJOR ANTIBIOTIC AGENTS*



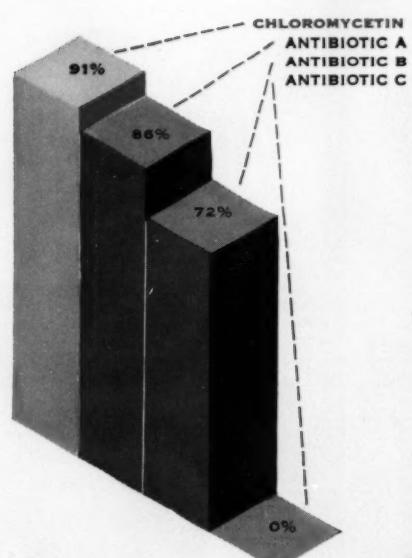
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References (1) Altemeier, W. A.; Culbertson, W. R.; Sherman, R.; Cole, W.; Elstun, W., & Fultz, C. T.: *J.A.M.A.* 157:305 (Jan. 22) 1955. (2) Austrian, R.: *New York J. Med.* 55:2475 (Sept. 1) 1955. (3) Murphy, F. D., & Waisbren, B. A., in Murphy, F. D.: *Medical Emergencies: Diagnosis and Treatment*, ed. 5, Philadelphia, F. A. Davis Company, 1955, p. 557. (4) Weil, A. J., & Stempel, B.: *Antibiotic Med.* 1:319, 1955. (5) Jones, C. P.; Carter, B.; Thomas, W. L., & Creadick, R. N.: *Obst. & Gynec.* 5:365, 1955. (6) Kass, E. H.: *Am. J. Med.* 18:764, 1955. (7) Tebrock, H. E., & Young, W. N.: *New York J. Med.* 55:1159 (Apr. 15) 1955.

*This graph is adapted from Altemeier, Culbertson, Sherman, Cole, Elstun, & Fultz.¹



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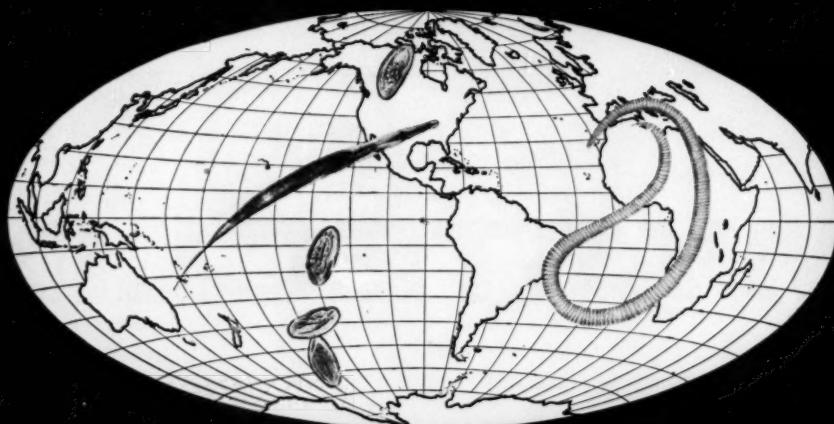
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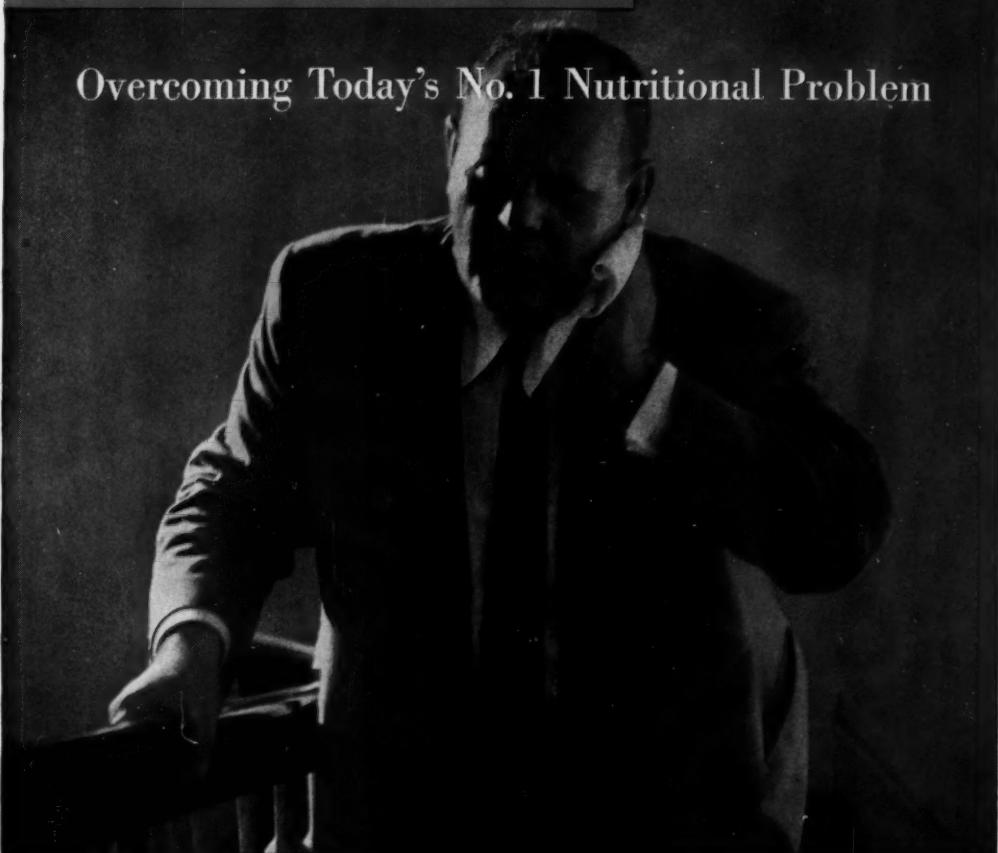
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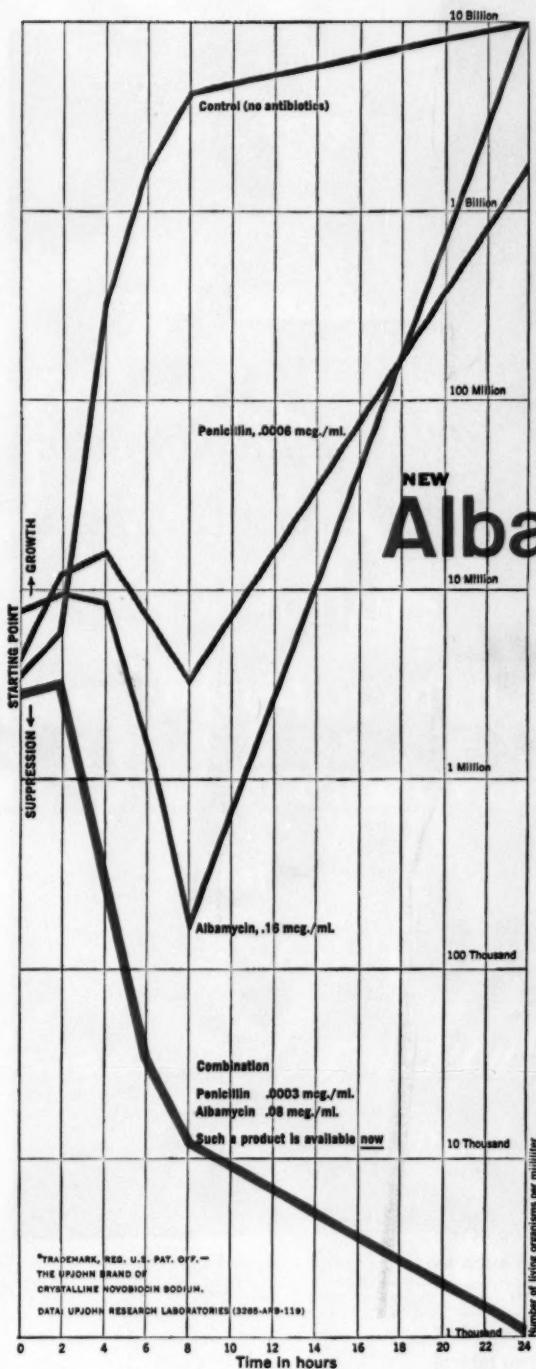
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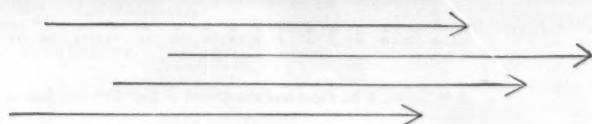
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SOFT TISSUE,
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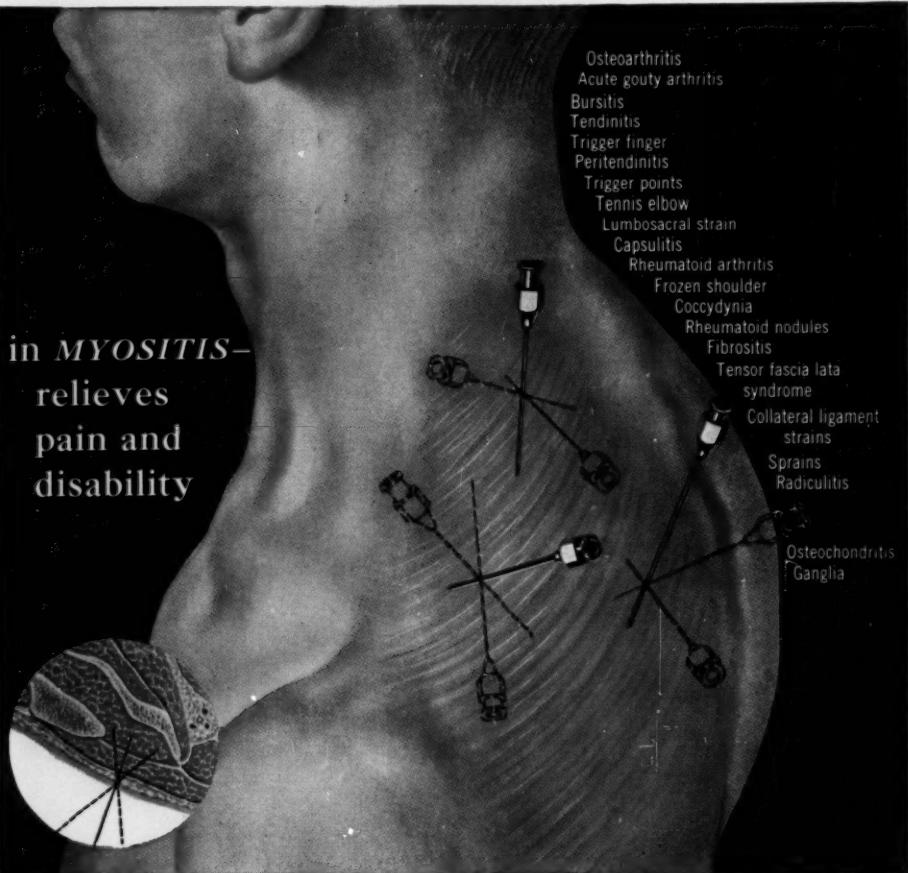


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Anti-inflammatory
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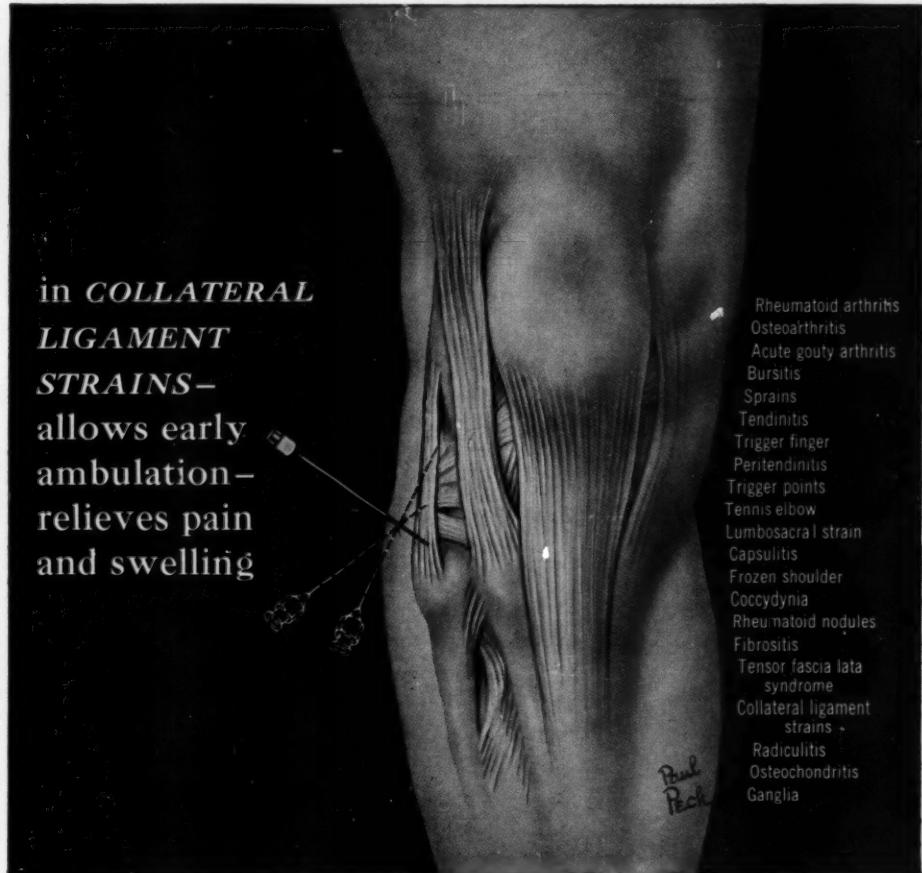
J. Hollander, J. L., Paper read at conference in New York City, May 31 and June 1, 1955

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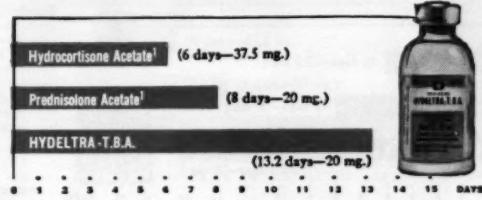
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Bursitis
Sprains
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Tennis elbow
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Capsulitis
Frozen shoulder
Coccydynia
Rheumatoid nodules
Fibrositis
Tensor fascia lata
syndrome
Collateral ligament
strains
Radiculitis
Osteochondritis
Ganglia

Duration of relief
exceeds that
provided by any
other steroid
ester



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ranges from 20 to 30 mg. depending
on location and extent of
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in *TENOSYNOVITIS*—
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Sprains
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Anti-inflammatory
effect lasts longer
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Hydrocortisone Acetate ¹	(6 days—37.5 mg.)
Prednisolone Acetate ¹	(8 days—20 mg.)
HYDELTRA-T.B.A.	(13.2 days—20 mg.)

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 DAYS



Dosage: the usual intra-articular,
intra-bursal or soft tissue dose
ranges from 20 to 30 mg. depending
on location and extent of
pathology.

Supplied: Suspension 'HYDELTRA'-
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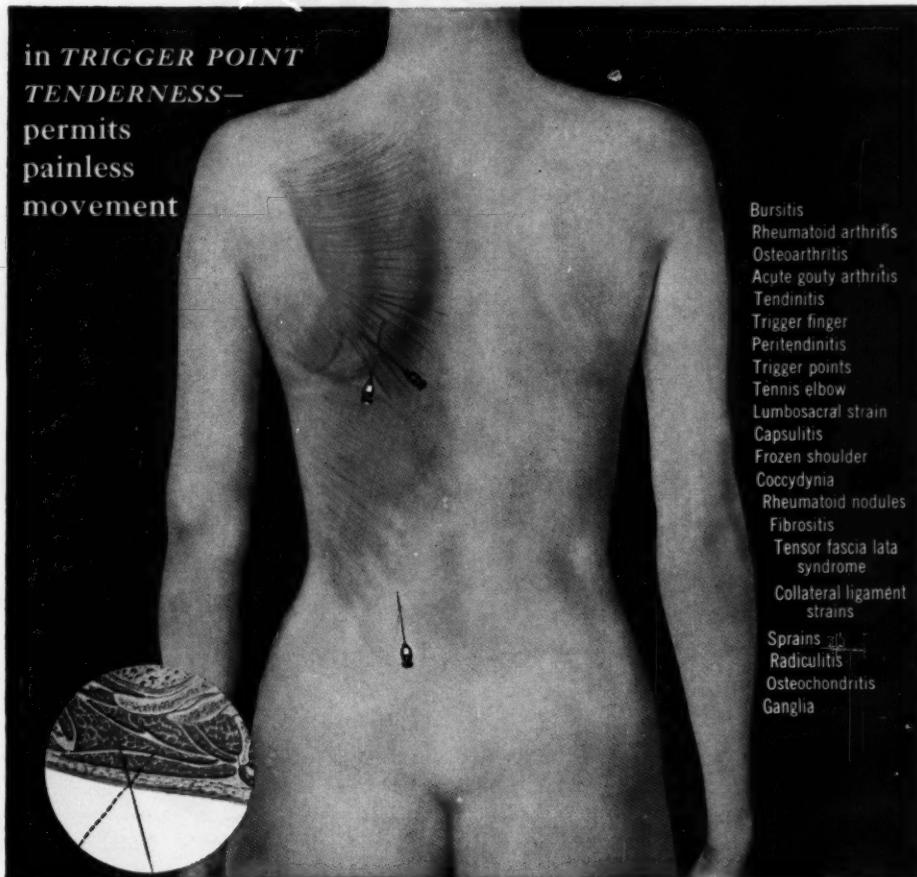
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TENDERNESS—**
permits
painless
movement



Bursitis
Rheumatoid arthritis
Osteoarthritis
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Tendinitis
Trigger finger
Peritendinitis
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Tennis elbow
Lumbosacral strain
Capsulitis
Frozen shoulder
Coccydynia
Rheumatoid nodules
Fibrosis
Tensor fascia lata syndrome
Collateral ligament strains
Sprains
Radiculitis
Osteochondritis
Ganglia

Duration of relief
exceeds that
provided by any
other steroid
ester

Hydrocortisone Acetate ¹	(6 days—37.5 mg.)
Prednisolone Acetate ¹	(8 days—20 mg.)
HYDELTRA-T.B.A.	(13.2 days—20 mg.)

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Dosage: the usual intra-articular, intra-bursal or soft tissue dose ranges from 20 to 30 mg. depending on location and extent of pathology.

Supplied: Suspension 'HYDELTRA'-T.B.A.—20 mg./cc. of prednisolone tertiary-butylacetate, in 5-cc. vials.



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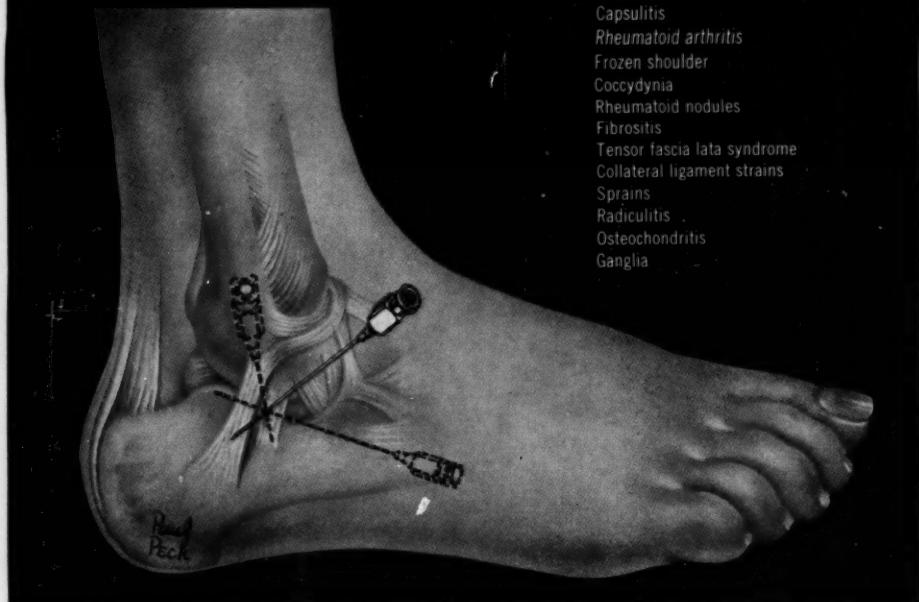
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for relief that lasts—longer

in **SPRAINS**—
reduces tenderness,
swelling and
limitation of motion

Osteoarthritis
Acute gouty arthritis
Bursitis
Tendinitis
Trigger finger
Peritendinitis
Trigger points
Tennis elbow
Lumbosacral strain
Capsulitis
Rheumatoid arthritis
Frozen shoulder
Coccodynia
Rheumatoid nodules
Fibrositis
Tensor fascia lata syndrome
Collateral ligament strains
Sprains
Radiculitis
Osteochondritis
Ganglia



Anti-inflammatory
effect lasts longer
than that provided
by any other
steroid ester

Hydrocortisone Acetate†	(6 days—37.5 mg.)
Prednisolone Acetate†	(8 days—20 mg.)
HYDELTRA-T.B.A.	(13.2 days—20 mg.)



Dosage: the usual intra-articular,
intra-bursal or soft tissue dose
ranges from 20 to 30 mg. depending
on location and extent of
pathology.

Supplied: Suspension 'HYDELTRA'-
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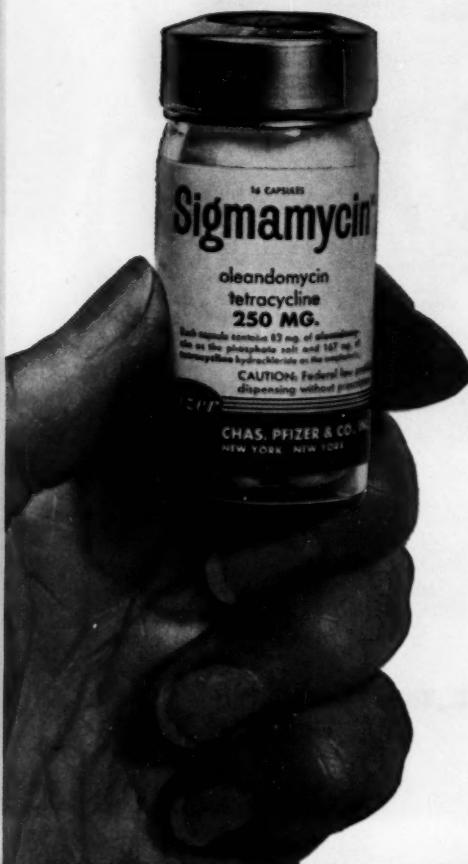
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synergistically
strengthened*

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[†]the antimicrobial spectrum of tetracycline extended and potentiated to include even those strains of staphylococci and other pathogens resistant to previously employed antibiotic therapy; and to provide

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3. a new maximum in safety and toleration

Capsules: 250 mg. (oleandomycin 83 mg., tetracycline 167 mg.)



World leader in antibiotic development and production

plus a new maximum in
palatability... *now available*

*with new
mint-flavored*

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OLEANDOMYCIN TETRACYCLINE

for ORAL SUSPENSION



A savory mint flavor that adds the further certainty of acceptability to antibiotic therapy, particularly for that 90% of the patient population treated in the home or office where sensitivity testing may not be feasible, and where pleasant flavor can make the difference between prescription adherence and laxity.

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*for the average
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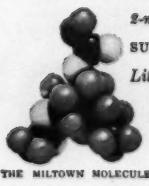
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SUPPLIED: 400 mg. scored tablets. Usual dose: 1 or 2 tablets t.i.d.

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LYSINE-VITAMIN SUPPLEMENT LEDERLE

outstanding
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Vitamin B ₁₂	25 mcgm.
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(INCREMIN Drops contain 1% alcohol)	

Remember INCREMIN DROPS. Same formula. Cherry flavor. Can be mixed with milk, milk formula, or other liquid. In 15 cc. polyethylene dropper bottle. Dosage: 0.5 to 1 cc. (10-20 drops) daily.



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eye
conditions
consistently
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Ophthalmic Suspension

(prednisolone acetate and sulfacetamide sodium)

Ointment with Neomycin

(prednisolone acetate and sulfacetamide sodium with neomycin sulfate)

blepharitis "responded dramatically to both the drop
and ointment form of therapy"†

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in 48 hours..." in 12 of 14 cases†

acute, infectious, gram-positive conjunctivitis

38 of 42 cases "subsided within four to seven days..."†

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marginal ulcers "completely cleared in 24 hours"†

† Abrahamson, I. A., Jr., and Abrahamson, I. A., Sr.
Am. J. Ophth. 42:482, 1956.

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METIMYD,® brand of prednisolone acetate and sulfacetamide sodium.



**when infection
strikes the respiratory tract . . .**

ILOTYCIN

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**provides singularly effective antibiotic
therapy because**

Dosage: The usual adult dose is 250 mg. every six hours.

Available in specially coated tablets, pediatric suspension, drops, ointments, and I.M. and I.V. ampoules.

- Virtually all gram-positive organisms are sensitive
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- Bactericidal action kills susceptible organisms
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DELAWARE STATE MEDICAL JOURNAL

*Issued Monthly Under the Supervision of the Publication Committee
Owned and Published by the Medical Society of Delaware*

VOLUME 29

JANUARY, 1957

NUMBER 1

THE FRAGILE CHILDREN OF DISCOVERY

SOME REFLECTIONS UPON READING A NEW HISTORY OF MEDICINE*

PHILIP S. HENCH, M.D.

Former President Truman once wrote me: "The best education for a President of the United States comes from an intimate study of the lives, letters, and papers of his predecessors." The study of history can be of as great spiritual and practical value to a physician as to a president.

Dr. Otto Bettmann's *Pictorial History of Medicine* shows the whole extraordinary pageant of healing. If within it are vivid colorings reflecting the scarlet terror of epidemics, the white stillness of death, the gray fog of dark ages, there is also the golden brilliance of discovery. The emotional texture is dramatic, appealing, rich in contrasts: great earnestness and compassion, sometimes cold erudition, and much wishful thinking. If the chronicle of medicine reveals follies, frauds, and foofaraw, one also finds here unsurpassed dedication, integrity, effort incredibly sustained, often heroism and total sacrifice, and thousands of victories wherein no man was loser. In this book Dr. Bettmann has traced the art and science of healing — from the medicine man of ancient times up to the medical man of the twentieth century — in a manner that is both fascinating and scholarly. As a historian he can stand among the peers.

The young doctor of today never meets the greatest of his teachers in person. To be exposed to this incomparable faculty he must go to the pages of medical history: to Hippocrates, Paré, Pasteur, Lister and

Osler. These great men are present in everything the doctor does — a fact illustrated by the story of the young physician faced with a difficult case. To bolster the confidence of a patient who was seriously ill, he said, "Why, Mrs. Jones, this morning Pasteur and Roentgen briefed me before I left home; Sydenham and Osler came here with me, and Domagk and Fleming are standing by." To which she replied, "Dear me, won't they cost a lot?"

They will cost nothing. The book of history is open — and free.

Our work rests — more, perhaps than that of any other profession — on the accomplishments of our predecessors. A knowledge of what they have given to medicine and to humanity should therefore be part of our background, and not for reasons of professional sentiment alone, but for reasons of good common sense.

Pursuing his career, the physician must of course strive to maintain a forward look: for it is ahead that both opportunity and difficulties lie. Yet despite modern complexities, most of our practical problems resemble those of our predecessors. The problems ahead are recurrences, variants of those in the past — the past of our elders if not our own. From our point of view they seem to come at us from in front, and to bear a fresh label. But beneath the wrappings there is usually an old problem, already examined and even, sometimes, disposed of. By borrowing experience and

* The Delaware State Medical Journal is privileged to present in its entirety a manuscript from the pen of a Nobel Laureate from the Mayo Clinic. The first portion appeared as the Foreword to "A Pictorial History of Medicine" by Dr. Otto L. Bettmann (Charles C Thomas, Springfield). The second portion appeared as "The Fragile Children of Discovery" in Saturday Review, September 1, 1956. We are grateful to Dr. Otto L. Bettmann, Mr. Charles C Thomas and "Science and Humanity," the Research Section of Saturday Review for their permission to reprint this manuscript.

wisdom from predecessors we can view certain situations as if in retrospect, and view them with enormous profit.

Physicians will do well, then, to look ahead for problems. Paradoxically, however, they should look "behind" for guidance, and a study of medical history provides an excellent rear-view mirror. Most physicians are unfortunately not conscious of their medical heritage, because few find time to study it. This may not be their fault alone. It must be admitted that many medical histories, however erudite, are not very readable. The author of this book, Dr. Otto Bettmann, has spent a lifetime to remedy this situation. In years of research in art centers all over Europe he has assembled a vast library of medical illustrations, studying, analyzing, and authenticating them so that they could become part of a new medical history: a history of medicine in pictures. This book was designed less for medical historians than for the practicing physician or layman who wishes to inform himself of the background of this profession at a glance.

What is the panorama that opens up before our eyes?

Dr. Bettmann's vista of 50 centuries clearly reveals that the course of medicine has not always been one of advance. If there are volumes of hard-won facts, life-saving ingredients and conclusions, and galaxies of truths and half-truths, there are also despairs, superstitions, and sophistries. Although the over-all direction of medicine has been, at least since the Renaissance, one of improvement, its progress toward betterment has been on countless occasions retarded, or even reversed. Thus it is more accurate to speak of the "history" or the "development" of medicine, rather than of its "progress" or "advance." And for the reader, a chronicle which recounts the ebb as well as the flow of medical art and science is both more accurate and more entertaining than a mere description of clinical and technical advances.

To what extent have physicians, individually or collectively, been responsible for the course of medicine, for its forward spurts or its backward shifts? One view has it that medical progress depends chiefly

on discoveries; hence the rate at which medicine advances is determined largely by the appearance of medical leaders and the results of their researches. Another view is that man is more servant of Fate than master, the product rather than the maker of environment. Thus great physicians are not "born medical leaders," but become leaders through the circumstances of their lives. Each period of travail generates its own saviors; each crisis produces discoveries.

Of these two views Dr. Bettmann supports neither extreme wholly. Because the physician is only one of many factors that have influenced the direction of medicine, the story cannot be told in terms of the medical man alone. Our medical benefactors must not be nameless, of course; but they must be seen in perspective, in the company of nonmedical contemporaries — friendly, indifferent, or hostile — whose ambitions and attitudes also require elaboration. Thus the author presents the course of medicine as part of general history. He views it not as a chronology of discoveries, but as only one of the great social forces — a continuing force, but one of fluctuating potency, now dominant, now recessive. Thus we see what impact the physician has had upon each of the great cultural and political areas, and vice versa.

Such is the story revealed in Dr. Bettmann's book. The product of the author's 30-year pictorial treasure hunt — plus his lifelong study of medical texts — the material displays a richness and variety which stamp it as part of a "collector's collection." Included are previously unpublished original photographs, and many ancient illustrations not heretofore published outside their land of origin.

In view of his vast array of graphic material, the author must have been sorely tempted to appeal chiefly to the eye; to construct his own medical art gallery within cardboards; to let most of the pictures speak for themselves, with mere captions and program-notes for the less articulate of his selections. But Bettmann the specialist in medical art is not subordinate to Bettmann the textual historian. The two combine harmoniously to create a superior

form; and the lucid text is brightened by the instructive anecdote, the humorous twist.

Many readers will, I believe, be fascinated by this book without pausing to analyze its special appeal. But those who disregard the identity of that appeal are depriving themselves of what is, in my opinion, an important bonus. Almost daily the physician has to do some teaching of patients, medical school and hospital personnel, fellow-physicians, or public groups. The public's avid interest in health is greatly increasing the physician's responsibilities and opportunities as a teacher and lecturer. He is not often as effective as he could be because he seldom appreciates, or employs fully, the power of visual instruction. "A picture may instantly present what a book could set forth only on a hundred pages." Today's doctor will do well to heed this century-old dictum of Turgenev — a dictum convincingly exemplified in Dr. Bettmann's *Pictorial History of Medicine*.

Its chapters are subdivided into compact thematic units of text and illustration. Each unit covers a particular subject — perhaps one great leader, an important controversy, or the development of some specialty. But the units keep their logical places in the general text, never losing their connection with related events. Thus there is no break in the continuity of interest and the sense of progression.

A *Pictorial History of Medicine*, then, is no "pictorial souvenir" for the physician to inspect casually and then consign to the patients' waiting room. Instead it should become a permanent member of his small, desk-side privy council: as dependable as the latest medical book or journal. In order to keep the size and cost of the book practicable, Dr. Bettmann concludes his chronicle as the twentieth century begins. Others will share my hope that this is not an end, but a pause, and that a companion volume will tell the fabulous story of medicine's last 50 years—years of unparalleled scientific discovery.

What are the qualifications for a discoverer? Important new medical truths have been discovered by physicians of almost every nation and race, of every social,

economic, and professional level, at every academic or medico-military level. Not even a medical education is mandatory: many of the greatest advances useful in medicine were discovered outside the ranks of medicine. "Truth" is a capricious, fickle companion who hitch-hikes, momentarily at least, with the humble as well as with those of higher station. The prescription for success in discovery is commonly "non-refillable." No individual or nation can corner the market on Truth, patent the capacity to discover it, or obtain a long-time copyright thereon.

There seems to be no special "climate" for medical discovery. Great discoveries have been made almost anywhere or everywhere; no desolate military outpost is too small and disorganized, no research center too large and too organized to prevent them. And the physician's bed, sometimes the only place where he can really "think," has been the place of conception for many a great discovery. No place or circumstance is "off limits" for the germination or debut of a new truth. And so wherever there is a single physician there are the potentials for discovery.

No singular ability, no small constellation of human qualities, has been identified here or elsewhere as the insigne of the discoverer. He will be guided by reason's lenses, but will use logic as a "sometime thing," for "logical" plans have led to blind alleys and many medical truths are still quite "illogical."

The minimal price for success in research has usually been complete forgetfulness of clock or calendar, strong compulsions or dedications, unmeasured patience, effort sustained beyond hope; in short, the relentless pursuit of the fixed objective. But even this does not guarantee results, and it has been paid by countless "losers" as well as winners. And the labors and hopes of many a "prepared mind" have gone unrewarded.

To conceive and recognize a new scientific truth, whether by empiric observation, by inductive or deductive reasoning, or by experimentation, is one of the most difficult accomplishments of man. To sense the subtle authenticity of a fragment of un-

discovered truth, a half-truth, to create therefrom, by skill and great patience, a new "whole-truth," and to launch it sturdy enough to survive the world's instinctive skepticism and hostility — all this must provide a unique satisfaction because it involves not only the discovery of a truth, but also the conversion of what is only a "personal truth" into an acceptable and generally accepted fact.

Why does it often take so long to utilize known truths and convert them into facts? As for the "power of truth," if medical truth is so invincible why is it so easily crushed, forgotten, lost? Why do so many truths, even important truths, have to be discovered over and over again before they can be accepted and put to work? These are the most discouraging aspects of medical history. The capacities and culture of the human race would be centuries ahead of their present status if man only had greater receptivity and sensitivity to truth, whether new or old. The generalization "*Truth does something*" is not correct. *Truth per se* is always passive; it is only a quality; it does nothing. But when truth is made to operate by nature or by man then it is a thing of power, active, quantitative. By contrast, there is nothing more fragile or delicate than that fragment of a new truth which forms in man's mind as an "original thought" and hovers there precariously on the borderline between his consciousness and subconsciousness. It has no weight, no substance; it is an embryonic "quality." Its mortality rate is terrific. Compared to it a human embryo is extremely hardy, its miraculous growth being almost automatic regardless of its host's wishes or actions.

It is not easy for an embryonic truth to live, much less to develop, in the mind of its host. Before wasting on it anything but the most casual thought the host will subconsciously try to stifle it with indifference, down-grading, excuses, etc. Even if he fertilizes it with some preliminary cogitation, orientation, and experimentation the "original thought" must overcome many dangers and enemies as it changes successively from a thought to a "notion," then "an idea," a side-tracked "conviction" or a

growing "concept," and a prenatal "belief." At birth it becomes a valid belief, then after his own confirmation it is a personally known "fact."

Even at this point the new truth faces further difficulties and enemies. To the rest of the world it is not a new truth, not even a notion, for it isn't even known. As the first report of its existence is being prepared several fatal and near-fatal mistakes must be avoided, such as misjudging audience receptivity, etc. Next comes the first "trial by audience" which latter is a composite of the gullibles, the trusting, neutrals, doubters, and skeptics, not to mention the disinterested, and a heterogeneous collection of falsifiers. Thereafter it starts the grand tour to face, mostly without author-protection, a thousand audiences similarly composed and variably disposed. Some of the common enemies the new truth will encounter in each audience are preoccupation, ignorance (of the subject), premature criticism, ridicule, dogma, "natural doubt," inherent skepticism, misunderstanding, misinterpretation, misconception, misrepresentation, misquotation, distortion, belittling and down-grading, jealousy and (equally serious) exaggeration, up-grading and uncritical acceptance. Now, all these will be coming from physicians and scientists, i.e., from persons presumably friendly to truth. And later from these same sources will come some full confirmations but more partial confirmations, rejections, and partial rejections.

If the new truth involves a remedy, in the testing of which the public will play a considerable role, further hues and shades of opinion will develop.

Considering all these difficulties, actual and potential, one wonders at the countless new medical truths which each year do gain general acceptance, surviving not only a prenatal maceration and digestion by the host but the natural inertia, skepticism, and reaction of the profession. Well and good; but Dr. Bettmann's account reveals an amount of "scientific spoilage" by way of rejected truths, forgotten discoveries, etc., that society simply cannot afford.

It would appear that an important percentage of discoverers and an even greater

percentage of their critics do not understand or discharge fully their individual and mutual obligations. Clinical investigation is a moody business and the fluctuant moods can be stressful. The law of averages brings to an investigator the labors and fatigues of failure, of successful discovery, of work in progress, and of work on dead-center. It is not easy to keep a sense of balance and of objectivity even when only one project is being tended. Investigators and writers will note that the perverse instinct to kill off one's own litter is not confined to the animal kingdom. If the discoverer's sense of responsibility toward his creations were more even through the whole developmental cycle of each, and if he were determined to gain the favorable attention of more and more of the diversified elements of his audience, he would increase the output and durability of his discoveries.

Now what is the fundamental purpose of all such laboring, of all our planning and lecturing and writing and demonstrating and sharing and remembering? The heart of the matter is not just the stimulated mind (for this could produce mere self-satisfaction or academic snobbery). The end of it is not even the new and stimu-

lating truth but the serviceable application of the truth. To be useful, medical truth must be put to work; it must serve. A scientific truth does not, by definition, become a fact (a noun derived from the verb *facere*—"to do") until it is made to operate.

In the last analysis that can happen only when and wherever the informed, dedicated physician and a single patient who needs him actually meet. It is in this place, a sickroom, of whatever kind it may be, where the truthful dreaming of the theorist, the demonstrations of the experimentalist, the magic of the chemist, the guidance of the laboratory, and the wisdom of the practitioner finally come together for their critical testing. Only in the sickroom can these separate forces demonstrate their basic truthfulness and ultimate usefulness; only here can they unite to fulfill their destiny of healing.

Alone here in such a room the physician must practice both his art and his science. And if his prescription is fashioned well by head and heart he will well and truly represent Medicine which, above all other arts and skills, seeks to preserve and restore the creative capacity of man.

ARTERIAL HYPERTENSION A REVIEW OF THE RECENT ADVANCES IN EVALUATION

by

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The complications of arterial hypertension have been known for centuries, but the disease itself has been recognized as such only for the past half century.

HISTORICAL BACKGROUND

Richard Bright¹ in 1836 gave the first lead toward the understanding of elevated arterial pressure in his paper summarizing the observations of 100 patients with albuminuria. In discussing the cardiac hypertrophy noted in 52 of these cases, he commented on the fact that 22 had no valvular or aortic disease to account for the hypertrophy affecting mainly the left ventricle. He hypothesized that either the "altered blood" had a direct toxic action on the heart, or the effect was on the arterioles necessitating "greater action" by the heart to force the blood through the vascular system.

In 1872 Gull and Sutton² studied Bright's disease and came to the conclusion that the primary focus of activity took place in the arterioles and capillaries and that the contracted kidney and hypertrophied heart were secondary changes. Mahomed³ carried this view further by noting in 1879 that the blood pressure frequently was elevated prior to the development of cardiovascular or renal changes. He further noted that the demise occurred more often from cerebrovascular accident and cardiac decompensation than from renal failure.

Allbutt⁴ in 1915 reaffirmed Mahomed's description of the disease and affixed the name "Hyperpiesis." This term was not widely used. Instead that used by Frank⁵ in 1911, "Essentielle Hypertonie," was converted to English usage as "Essential Hypertension."

To this knowledge of the condition of essential hypertension little has been added

over the past 41 years. The features mentioned by the early great thinkers of a positive family history, elevated blood pressure being present prior to the development of organic vascular and renal changes, and the major types of demise, are still much the same. The advances today are taking place primarily in palliative therapy by the use of drugs and surgery, with little of value being contributed concerning the etiology of the condition. More light is being shed on some of the diseases which mimic essential hypertension and these newer developments are better enabling us to classify and eradicate the etiologic focus of hypertension in these cases.

PHEOCHROMOCYTOMA

The chromaffin tumor or pheochromocytoma has long been a fascinating disease. Fortunately or unfortunately, it is rare, being seen clinically with an instance varying in different studies from 1 in 200 to 1 in 3000 patients with arterial hypertension. The course and symptoms of the disease vary from a classical picture of paroxysmal attacks of apprehension, pallor, headache, chest or abdominal pain, palpitations, and a moderate to marked increase in blood pressure, to an asymptomatic picture of merely a sustained elevated blood pressure. This latter picture, which is said to occur in approximately 50% of the cases with pheochromocytoma, is responsible for much anxiety on the part of the physician. Adrenergic blocking agents have been widely used for diagnosis of this condition. Two drugs of this type are available. Benzodioxane was the first to appear and is still used. The drawbacks of this drug are many. Frequently a marked rise in pressure is noted in essential hypertension and occasionally this is associated with a sense of substernal oppression suggestive of coronary insufficiency. False negatives and false positives do occur. Regitine is now used

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more widely and seldom gives the rise in pressure as does Benzodioxane. Still, false positives occur as one might expect with a drug which is basically an adrenergic blocking agent and thus in its own right a hypotensive agent. Patients manifesting high blood pressure with a large neurogenic element almost invariably have a positive response after the first dose of 5 mgm. of Regitine. I have had the misfortune of seeing a patient die post-operatively who was being operated on with the preoperative diagnosis of pheochromocytoma based upon the positive Regitine test. Also on her chart was a marked response to 1 mgm. of hexamethonium, which of course, gave the diagnosis of hypertension with a major neurogenic element. She did not have a pheochromocytoma.

In 1954 the urine assay of catechol amines, breakdown products of epinephrine and non-epinephrine, was described in a form which was suitable for the average hospital laboratory. This was a major advance in detection of pheochromocytoma. It was advised by Goldenberg⁶ following adequate preliminary evaluation of the two most suitable procedures, that all hypertensive patients have the rapid screening method originally described by Lund⁷ in 1949. As occasionally there are false positives with essential hypertensive patients when using the rapid method, all positive results should have the longer photofluorometry method performed for confirmation. This latter test gave no false positives with a minimum reading for 16 pheochromocytoma patients of 138 units compared to a maximum level of 44 units for a large group of patients whose blood pressure was elevated from other causes. The wide use of these studies since 1954 has further substantiated these figures. The advantages of this diagnostic procedure are obvious and are as nearly specific as possible in the field of medicine.

As an added feature of interest in this condition, it is worth mentioning the work recently reported by Leiser and Corcoran.⁸ They have described the changes which take place in the urine flow following the intravenous administration of Benzodioxane. A marked reduction of urine volume

was noted to occur uniformly in seven patients with pheochromocytoma. Controls consisted of 32 essential hypertensive patients and 3 normotensive patients who showed no change in urine composition or volume following administration of the drug. It is proposed that this is an important confirmatory test prior to operation for pheochromocytoma. This preliminary report is convincing and certainly worthy of trial in a suspected case.

ABNORMAL RENAL CONDITIONS

Another fertile field of hypertension has been in renal disease. No great strides have been revealed in the management or understanding of bilateral renal disease other than the recent work of Kark⁹ in the field of renal biopsy. He has been, by his study and refinement of this procedure, uncommonly successful by obtaining kidney tissue in over 90% of his attempts. From the standpoint of hypertension, one practical aspect of his work has been the elucidation of the condition of bacterial interstitial nephritis which apparently occurs with negative urine cultures and the absence of white cells or albumin in the urine. Hypertension of this sort can be completely relieved by administration of antibiotics, providing of course that permanent structural damage has not occurred.

Renal biopsy is apparently a safe procedure, and well over 1000 biopsies have been done by the Kark method in the past three years without a fatality so far reported. In the near future it appears that it will be practicable to do renal biopsies on every case of severe progressive and malignant hypertension in a last effort to uncover a definite etiologic diagnosis. Renal biopsy, of course, should be undertaken only by one experienced in the procedure, and certainly every hospital should have this service available.

Unilateral renal disease goes through waves of popularity and disinterest as a hypertension topic. This is due to variable results following removal of diseased kidneys. Many investigators feel that a good response will occur only when the hypertension is of recent origin. It appears that development of hypertension secondary to unilateral kidney disease or damage is like

pushing the starter of a gasoline motor. If one takes his foot off the starter early enough before the engine has caught, the motor will not continue to turn over. Early removal of the kidney following development of hypertension seems to be analogous. Poutosse¹⁰ recently stated that for a successful operation one must have proven the pathology, have evidence of recent onset, and evidence of a rapid progression of the hypertension state. These are a reasonably well accepted criteria, and I believe sound. He presented a small series of cases of occlusion of the main renal artery, or a branch thereof, and emphasized the value of aortography. This procedure is now done at most hospitals. The two main methods used for injecting dye are the insertion of a catheter in the femoral artery or direct translumbar aortic puncture. The latter is simpler and is done more widely.

Howard¹¹ has described an interesting method of determining which kidney is involved in cases where unilateral disease is suspected but the location is unknown. He reported four patients with recent onset of severe progressive hypertension who had normal intravenous urograms and retrograde pyelograms. Two of them had had an attack of abdominal pain preceding the hypertension which was diagnosed as appendicitis. He found that the afflicted kidney, although having dye excretion equal to the normal side, had a reduction of water excretion by more than 50%; and that the sodium content of the urine excreted was 90% less than the concentration of the urine from the opposite normal kidney. These cases showed a uniform reduction of the blood pressure to normal following nephrectomy and filled the already mentioned criteria for a successful operation. This is a most interesting observation and should be of definite value, providing more confirmatory reports are published.

TOXEMIA OF PREGNANCY

One field of hypertensive disease which has been long neglected is toxemia of pregnancy. Finnerty¹² has started and is producing a monumental study on this subject. Working in conjunction with the prenatal clinic his group has screened more than 1000 patients who were presented with

the so-called "classic triad" of toxemia; namely, hypertension, albuminuria and edema. Many studies were done on this group but he found that by using the Funduscopy evaluation and urinalysis, this heterogenous group could be readily divided into specific diagnostic categories. The observation of a retinal sheen which is present in true toxemia and glomerular nephritis was the keystone of the work. This sheen is a wet glistening appearance present over the entire retina and is more marked than that usually noted in young adults and children.

In patients presenting this triad it was pointed out that retinal sheen coupled with normal arteries and only albuminuria was diagnostic of toxemia. If hematuria was present with the above, then the diagnosis was glomerular nephritis. If hypertensive vascular changes were present in the retina without the sheen, then the diagnosis was essential hypertension. If the sheen was added to this, the toxemia was superimposed upon chronic hypertension. If the fundi were normal and albuminuria was present, the diagnosis of pyelonephritis was made and confirmed by the finding of leukocytes or "glitter cells" in the urine. The "glitter cells" originally described by Sternheimer and Malbin¹³ are leukocytes which actually seem to shine or glitter when stained with a supra-vital stain. These cells are only present in the urine when infection exists in the kidney parenchyma itself.

A breakdown by Finnerty of these patients tentatively classed as toxemia by the earlier mentioned method revealed the following:

Hypertensive vascular disease	666
Hypertensive vascular disease plus toxemia	90
Postpartum hypertension	72
Pure toxemia	154
Pyelonephritis	56
Edema without disease	8
Unrelated cardiac or renal disease	6

It is evident from the breakdown of diagnoses what a valuable contribution this is. Whereas 1081 patients were originally classified as having toxemia, only 15% of the group actually fell into this category. Differentiation of this group gave a better

chance for active treatment where possible, as with pyelonephritis, and more sense of security for the later part of the pregnancy where the diagnosis was essential hypertension. Intensive close observation with the security of knowing more definitely which patients were liable to develop acute disease around the time of delivery is of great value to the obstetrician managing the case. Finnerty deserves much credit for a new and valuable contribution to the field of hypertension in pregnancy.

ESSENTIAL HYPERTENSION

In evaluating the patient with essential hypertension, the major realm of contribution has been a more thorough comprehension of the natural course of the disease and a further understanding of the several tests which have been used for the past decade or so. When one attempts to evaluate a patient with an elevated blood pressure, he aims for two objectives. One is qualitative in which an effort is made to establish a definite diagnosis. The other objective is a quantitative one and in this instance an estimate and prognosis is the goal. It is imperative, of course, that these objectives be fully evaluated prior to advising a course of therapy. Only when dealing with a patient in the malignant phase or manifesting an acute encephalopathy is one warranted in treating first, then studying the patient. The new developments concerning the qualitative evaluation of the hypertensive patient have been discussed earlier in this paper.

If the patient is placed in that large category which we call "essential hypertension," it is of importance to determine the condition of the blood vessels, heart and kidneys. Keith, Wagener and Barker¹⁴ in 1938 made the great step of correlating the changes in the retina with the stage and course of the disease. With the exception of Finnerty's contribution, nothing new has been added. It is still the single most useful procedure in the evaluation. In my estimation the funduscopic classification as it now stands could be improved only by a further breakdown of the grade II category. This is that stage in which the arterioles are narrowed, attenuated and show compression of the veins at the crossing points.

In a series of 100 patients¹⁵ with varying degrees of hypertensive disease, 54 were classed as grade II by this system. This suggests that this group is unfairly weighted and tends to give the assurance to the observer that a prolonged, relatively safe course lies ahead for the patient. There are many patients of this sort who actually lead a shorter course than the grade II classification would indicate. It has been my experience that two findings are important in this grade which tend to indicate a more severe progression of the disease. First, the degree of compression can be divided into three phases, which shall be called minimal, moderate and maximal. Minimal compression is evidenced by only a reduction of calibre of the vein as the artery crosses it. Moderate compression is present when the vein is actually obliterated for a short space on either side of the artery but the bed of the vein is not disturbed. Maximal compression shows a complete obliteration of the vein with a displacement of its course at the crossing point.

The second finding of importance is the presence of irregularities along the course of the arteriole. This was called "spasm" by Keith and Wagener but pathologically this change has been shown to be irregular areas of vessel wall hypertrophy. Spasm is seen with hypertension but usually only in pre-eclampsia and rarely in rapidly accelerated malignant hypertension. The patients with grade II retinopathy who have these irregularities usually are those showing more rapid progression of the disease. I do not have enough statistics available to propose a subclassification as yet but mention it as a strong clinical impression rather than an established fact.

To continue with our evaluation of the status of an essential hypertensive patient, it only need be mentioned that electrocardiograms and roentgen ray examinations for heart enlargement are mandatory in all cases. The status of the ballistocardiogram is still unclear in this condition so that little can be said concerning its use from the standpoint of severity or prognosis.

It is important to know the renal status as it is a major prognostic indicator. Al-

buminuria in the absence of congestive heart failure is an indication of undue stress probably at the glomerular level. It has been my feeling that albuminuria is like a cry for help. In most cases it disappears rapidly with reduction of the pressure. It is tempting to think of a test group of patients in which hypotensive therapy was aimed only at keeping the urine protein free without reference to the sphygmomanometer. It would indeed be an interesting series.

Further study of the kidney gives a better idea as to the competency of the various functional units of the nephron. The blood urea nitrogen level is a rough evaluation of glomerular function. A urea clearance test is more specific from the standpoint of added information and possible prognosis. Tubular function is easily evaluated by any of the standard concentration tests providing care from the standpoint of patient instruction is taken. A simple test where the patient need not be counted upon is the phenolsulphonphthalein excretion test but abnormal values must be confirmed by a second test to be valid.

One must realize that each of these tests supposedly measures only a part of the nephron and that tubular as well as glomerular function must be known. We are interested in total kidney function.

An observation of some interest¹⁵ which was noted when reviewing a large number of charts of patients who had been followed for many years was that a rough relationship exists between tubular function and glomerular function in the course of essential hypertension. In these cases it was noted that the concentration power and phenolsulphonphthalein dye excretion began to fall long before the urea clearance was reduced or the blood urea nitrogen became elevated. The tubule is therefore apparently more sensitive to gradually increasing arterial pressure damage than the glomerulus with the exception of the previously mentioned seepage of albumin in the more acute elevations of pressure. These findings are not specific enough to use as a definite yardstick but are of some value when dealing with an individual patient.

Another field of testing in these patients is that of vascular reactivity. Two tests widely used are the cold pressor test and the sodium amyta test.

Hines and Brown¹⁶ described the cold pressor test originally in 1933. The chief value of this test was in predicting with some accuracy which persons would be likely to develop hypertension at a later date. They performed this test on a series of 1015 patients who had normal blood pressure and of this group classified 156 as hyper-reactors. Six years later the group was again examined¹⁷ and 36% of the hyper-reactors had developed hypertension as opposed to none in the group of normal reactors. They also correlated the response of the patient with the fundoscopic changes (Keith, Barker and Wagener classification) and found that those in grade II gave the greatest response. This they felt indicated that grades III and IV probably had maximal vasoconstriction already so that the added neurogenic stimulus could not be manifested.

The sodium amyta test is about as non-specific a test as can be imagined. The amyta acts on the cerebral cortex, the hypothalamus, and directly on the vessel wall itself. The results tell only one thing and that is how low the blood pressure will fall with intoxicating doses of amyta. There is no correlation of how that same patient will react to the various types of hypotensive medications. This test has been used in the past to indicate the degree of lability of the blood pressure with the false supposition that marked lability means the blood pressure elevation is less serious and will respond to (a) diet, (b) sympathectomy or (c) bed rest. The majority of the patients that give evidence of lability are found to disappoint the practitioner when he expects a good result with any of the above. The most specific thing which this test shows is, I repeat myself, what the blood pressure will do when the patient is intoxicated with amyta. Since very potent anti-hypertensive agents are available and give moderately safe, effective control in a large percentage of hypertensive patients, I believe there is little to gain from this test.

The course of essential hypertension is becoming more thoroughly understood as time passes and one of the most valuable contributions has been the work of Bechgaard¹⁸ from Denmark. He has followed a group of 1000 patients with a minimum blood pressure of 160/100 mm for 16 to 22 years. 81% were 40 to 69 years of age at the onset of the study. 357 patients were still alive at the end of the period averaging 19 years. The original group was composed of 30% men and 70% women. 18% of the males and 45% of the females remained alive at the end of the study with one-third of the females being past 70 years of age.

A group of 63 patients who are over 76 years of age were broken down as to their initial blood pressure readings. Of the 12 males all had systolic pressures under 200 mm and 10 of the 12 had diastolic pressures below 110 mm. In the female group of 51 patients, 33 were under 200 mm and 18 were above. The female diastolic distribution showed 20 below 110 mm and 31 had initial diastolic pressures higher than 110 mm, an average of 19 years earlier. Only four patients in the group of 1000 received any specific therapy so that this can be considered as an untreated control study. Of this whole group, only 13 changed into the malignant phase during the first 10 years and none during the latter half of the study.

This collection of random cases and intensive follow-up over a 22 year period is one of the most valuable pieces of work shedding knowledge on the natural course of essential hypertension. Among the many lessons suggested by this study are the following: (1) the incidence of change to the malignant phase is so low that when confronted with this condition, it is more likely to be of a different etiology than essential hypertension. Therefore, intensive qualitative study is imperative. (2) Mild to moderate essential hypertension is probably better not actively treated but should be observed only. Treatment should be reserved for those patients showing a tendency toward progression or with a high diastolic pressure coupled with signs of deterioration of the cardiovascular system. (3) Males seem to tolerate the disease poor-

ly and probably should have more active treatment.

There are several other points worthy of mention in discussing the course of essential hypertension. The level of the blood pressure in any particular patient is not particularly important. The factor which is important is the ability of the individual cardiovascular system to carry the load. This varies from person to person just as do other physical and mental characteristics. Because of this, one may see a malignant hypertensive patient with a diastolic pressure of 100 to 110. At the other extreme, one may see a diastolic reading of 140 to 150 being carried for years without retinopathy or cardio renal deterioration. Another factor of equal importance is the rate of change of the pressure. This is seen occasionally when a chronic hypertensive patient of mild severity comes under stress which causes an elevation of pressure. This is followed by a more reactive vascular system with a higher continued pressure until the patient develops the picture of encephalopathy with or without a continuing malignant phase. If the cycle is broken and the stimuli are decreased, the patient may live a normal life until such external stimuli again begin. It is felt that this is comparable to the situation already discussed concerning the success of nephrectomy with a diseased kidney. The longer the sudden elevation of pressure remains the poorer are the chances of returning it to its previous state.

CONCLUSION

The evaluation of arterial hypertension has been discussed from its early descriptions in the 19th century to some of the more recent notes by our present day workers. Worthwhile advances of a minor nature have been made in differentiating a few specific and curable causes. However the great mass of essential hypertensive patients can be evaluated only from the standpoint of progression of disease and from this evaluation the decision to use energetic therapy must be made.

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MANAGEMENT OF THE PATIENT WITH ESSENTIAL HYPERTENSION

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THE EDWARD B. ROBINETTE FOUNDATION
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of the

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During the past five years there have been important changes in the management of arterial hypertension. Whereas previously there were no effective agents for dealing with severe elevations of pressure, it is now possible to select from a number of anti-hypertensive agents of varying potencies. The effectiveness of any anti-hypertensive regimen is evidenced not only by the achievement of a sustained lowering of the blood pressure, but also by its ability to prevent the serious and fatal complications of hypertensive cardiovascular disease.

EVALUATION OF THE PATIENT

Etiologic Features:

In the process of planning an anti-hypertensive regimen for a patient, certain questions must be answered concerning the patient and his disease. Although the majority of patients may fit into the category of "essential" hypertension, the physician must search for specific etiologic factors. Certainly no patient should be treated empirically without first taking steps to rule out the presence of coarctation of the aorta, Cushing's disease, pheochromocytoma, or unilateral renal disease which might be corrected surgically with cure of the hypertension. Polycystic renal disease and glomerulonephritis occasionally may be found in association with hypertension, but unfortunately their treatment does not often result in relief of hypertension.¹

Clinical Approach:

One cannot overemphasize the importance of the initial interview and examination in establishing rapport with the patient. At this time the examiner can make a tentative evaluation of the patient's intelligence and emotional maturity, factors

which should be weighed before embarking on a therapeutic program.

In addition to the history and physical examination, a few laboratory studies may be helpful in evaluating the severity of the hypertensive disease and the extent of vascular damage. We routinely perform electrocardiography, orthodiagraphy, funduscopy, urinalyses, intravenous phenosulfonphthalein excretion tests, blood urea nitrogen and urography. It is emphasized that all of the above except intravenous urography can be performed as office procedures. In addition, we have found it helpful to do a simple postural test.

Technique of postural test:

1. Have patient lie flat with one small pillow for 10 minutes in a comfortably warm, quiet room.
2. At the end of this period take blood pressure and pulse rate at intervals of 1 minute for 2 readings. Count pulse for 10 seconds x 6. Measure blood pressure to the nearest multiple of 5.
3. Have patient rise quietly and stand relaxed at the side of his bed.
4. Record blood pressure and pulse rate.
 - (a) Immediately after standing.
 - (b) After 1, 2 and 3 minutes of quiet standing.

This not only will indicate the severity of the hypertension and detect the occasional patient with spontaneous postural hypotension, but also will aid in evaluating the effectiveness of anti-hypertensive drugs, particularly ganglionic blocking agents, or the result of operations for hypertension.

SPECTRUM OF TREATMENT

Mild and Moderate Hypertension:

In the management of the patient with mild, labile hypertension, certain basic

measures such as sedation (including reserpine), rest, improved work habits, and weight reduction in the obese still have basic value. Foods high in salt content should be avoided, and salt should not be added at the table. In the presence of fluid retention more dramatic restriction of salt is advised. This may be achieved by a 500 mgm. sodium diet or by the rice diet.

Severe Hypertension:

For the patient with severe hypertension, particularly if there is evidence of progressive vascular damage, one is obliged to add to the regimen above the use of depressor drugs which have the specific effect of lowering the blood pressure. Here a knowledge of drug action, side effects, toxicity, comparative potency and contraindications is not only helpful, but is obligatory. It is our impression that, although these drugs are useful in expert hands, they are currently being used to excess and sometimes unnecessarily.

The patient with only moderate hypertension can often be managed adequately with less potent agents such as rauwolfia or veratrum. For the severely hypertensive patient Apresoline and the ganglionic blocking agents stand out as the "big guns" of the therapeutic armamentarium.

It becomes helpful to classify these agents into three groups according to their site of action.

ADRENERGIC BLOCKING	CENTRALLY BLOCKING	GANGLIONIC BLOCKING
Regitine	Veratrum	Hexamethonium
Benzodioxane	Protoveratrine	Ansolysen
Dibenzyline	Apresoline	Ecolid
	Reserpine	Inversine

ADRENERGIC BLOCKING DRUGS

Regitine:

Among the adrenergic blocking drugs, Regitine is used primarily for the diagnosis of the adrenal medullary tumor, pheochromocytoma.² This test is performed only if the systolic blood pressure is 170 mm. Hg. or more, in order to secure a sharp "end point." A dose of 5 mgm. is given intravenously and the blood pressure must fall at least 35 mm. systolic and 25 mm. diastolic to be considered significant. Prior sedation and azotemia may give falsely positive results. In our experience the discovery of a pheochromocytoma has been aided more by a history of paroxysmal hy-

pertensive episodes than by a specific degree of fall in systolic and diastolic pressure during the Regitine test. The histamine provocative test is used in place of the Regitine test when the systolic blood pressure is below 170 mm. Hg. We prefer Regitine as the initial agent to be used as a screening test for pheochromocytoma because of the occasionally alarming pressor response which has been seen following the use of benzodioxane.

Dibenzyline:

Like other adrenergic blocking drugs, Dibenzyline blocks sympathetic impulses travelling to the blood vessels at the peripheral effector site. Unfortunately its long-term use has been limited by its production of severe postural hypotension, tachycardia, and nasal stuffiness.

CENTRALLY BLOCKING DRUGS

Veratrum:

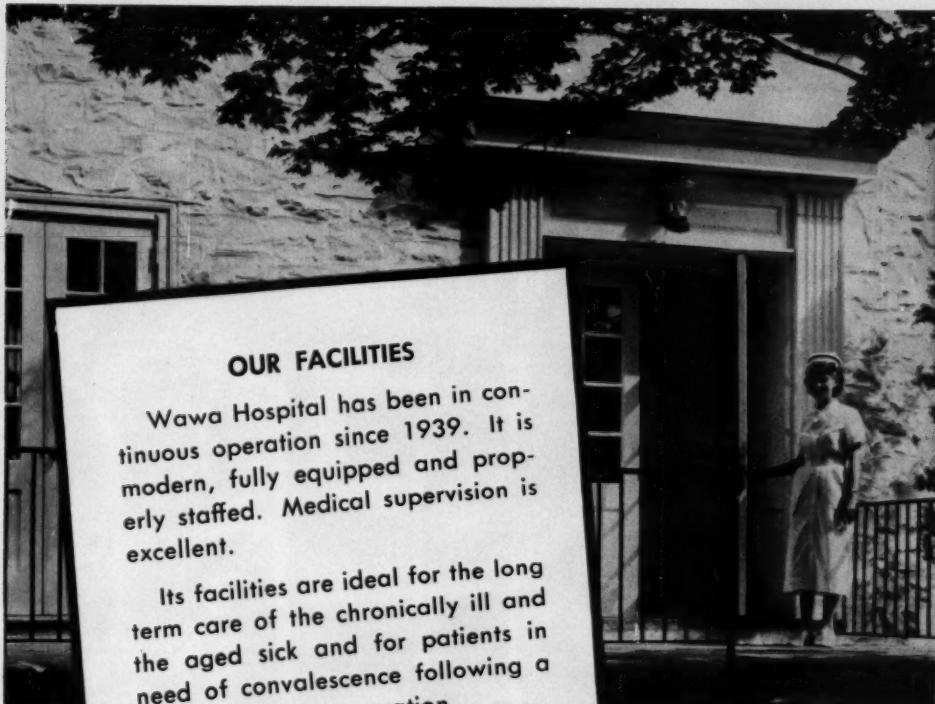
The veratrum drugs have both a hypotensive and a cardiac slowing effect; the latter may be reversed by atropine sulfate 0.6 mgm. without diminishing the hypotensive action. The starting dose is one tablet of Veriloid, Vergitryl, or Veratrite four times daily, increasing the dose by one tablet daily each week until an effective dose is reached. The usefulness of veratrum is limited because the therapeutic dose is almost equal to the dose which produces side effects of nausea, vomiting, and salivation.

Protoveratrine:

The preparation of a mixture of pure crystalline protoveratrine A and B from veratrum album has resulted in a drug of greater potency, but it, too, is limited by a narrow toxic to therapeutic ration. Veralba and Provell Maleate are given in a dose of 0.2 mgm. four times daily; each week thereafter the dose is increased by 0.2 mgm. four times daily to an average maintenance of 0.6 to 1.0 mgm. four times daily. In the patient receiving digitalis, bradycardia or cardiac arrhythmia may occur. The latter may result particularly after large intravenous doses of veratrum and can usually be abolished by atropine.

Apresoline:

In addition to being a central sympathetic antagonist, Apresoline is said also to have



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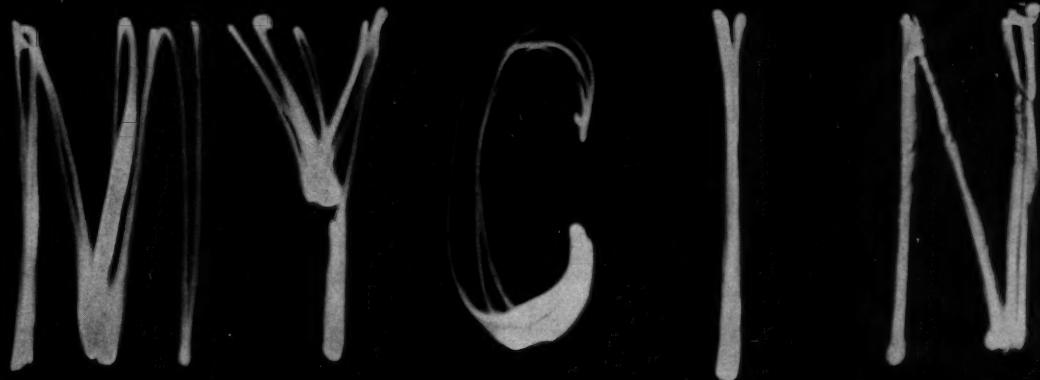
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an adrenergic blocking effect and antisertonin action. It increases renal blood flow presumably by increasing the cardiac output and by producing widespread vasodilation.³ In patients with coronary artery disease, angina may occur or be aggravated by the use of Apresoline, and congestive failure may be accentuated. These side effects of Apresoline have been attributed to the tachycardia, increase in cardiac output, and lowering of aortic perfusion pressure produced by the drug.

For the first week of treatment a dose of 10 mgm. four times daily is recommended in order to lessen the initial annoying side effects, namely headache, nausea, tachycardia, palpitation and nasal congestion. The dose is then increased each week by increments of 25 mgm. four times a day up to a dose not exceeding 100 mgm. four times daily.

Occasional patients receiving large doses of Apresoline (over 400 mgm. daily) for periods of one year or more, have developed a syndrome characterized by arthralgia, or arthritis, and a clinical picture of disseminated lupus erythematosus. Since using Apresoline in a dose not exceeding 300 mgm. daily in combination with reserpine, we have not encountered this symptom complex.

Rauwolfia serpentina and reserpine:

In the short interval since Wilkins introduced Rauwolfia serpentina in this country, it has become the most widespread agent for the treatment of hypertension.⁴ Acting presumably at the hypothalamic level, it has both sedative and vasodepressor effects. The alkaloid reserpine is thought to be the active principle and has largely supplanted use of the whole root. Because of its mild effect it is recommended in the treatment of labile hypertension, in a dose not to exceed 0.25 mgm. twice daily. The onset of lowered blood pressure does not occur for from 4 to 7 days. The maximum effect appears after 3 to 4 weeks. More severe hypertension can sometimes be controlled by starting reserpine in a priming dose of 1 mgm. four times daily, decreasing this dose gradually over a one week period of time to a maintenance level of 0.25 mgm. twice daily. Use of the intravenous route

for patients with diastolic pressures of 140 mm. Hg. or over is discussed under the section on management of hypertensive crisis.

Side effects most frequently encountered with reserpine are nasal congestion and drowsiness; less frequently patients may complain of a lack of initiative or a feeling of listlessness or apathy. Weight gain may be a problem in the obese patient, and an occasional patient may actually retain fluid. Depression is a side effect of major importance, but is fortunately of minor frequency. It seems to occur more often in patients receiving doses of reserpine greater than 1 mgm. daily over a long period of time. The sinus bradycardia produced by reserpine is often beneficial for the patient with labile hypertension bothered by tachycardia and palpitation. The bradycardic effect may be increased in the patient receiving digitalis.

Reserpine combined with other drugs:

Probably the greatest usefulness of reserpine is found when given in combination with the more potent depressor drugs. It not only may act additively to potentiate their hypotensive effect, but also may permit these more dangerous agents to be used in a smaller dose. The laxative effect of reserpine may lessen the constipating effect of the ganglionic blocking drugs. Similarly, the cardiac slowing by reserpine may decrease the annoying tachycardia produced by Apresoline.

GANGLIONIC BLOCKING DRUGS

There are four main autonomic ganglionic blocking drugs to be considered: hexamethonium, Ansolysen, Ecolid and Inversine. These are probably the most potent and potentially most dangerous anti-hypertensive agents now available.

Hexamethonium:

The earliest of these agents to be developed, hexamethonium is absorbed erratically from the gastrointestinal tract when given by the oral route, thus making parenteral administration preferable in many instances. In the hospitalized patient a test dose is given intravenously with the patient sitting; thus allowing one to observe a full pharmacological effect by the appearance of postural hypotension. As a

rule of thumb the effective intravenous dose may then be doubled and given subcutaneously or intramuscularly on a four to six hour schedule. The precaution should be taken to have the blood pressure checked with the patient standing, omitting the next dose of the drug if the blood pressure is below 180/100 mm. Hg.

Ansolysen and Ecolid:

The hope that Ansolysen would produce a more predictable hypotensive effect than hexamethonium has not yet been borne out by our clinical trials. Likewise, Ecolid seems to offer little advantage except, perhaps, by a longer duration of action (up to 8 to 12 hours).

Inversine:

Because of its uniform absorption when administered by the oral route, Inversine appears to permit greater dose-effect predictability in the individual patient. All of these agents in full dosage produce the side effects of autonomic ganglionic blockade, including constipation, which may progress to paralytic ileus, impairment of visual accommodation, sexual impotence, a dry mouth, and orthostatic hypotension which may result in peripheral circulatory collapse.

With all except Inversine, constipation may cause accumulation of the drug, thus giving rise to sudden hypotension. Laxatives usually are necessary. Patients are instructed to stop the ganglion blocking drug and to notify their doctors if a bowel movement does not occur each day. Prostigmine, 15 mgm. by mouth on arising, is usually helpful when laxatives do not produce the desired effect. Pilocarpine, 5 mgm. three times daily, may correct the associated visual disturbance due to the drug.

The recommended oral dosage for these four ganglionic blocking agents is as follows:

Drug	Starting Dose	Maintenance Dose
Hexamethonium	125 mgm. q.i.d.	250-500 mgm. q.i.d.
Ansolysen	20 mgm. t.i.d.	100-200 mgm. t.i.d.
Ecolid	25 mgm. b.i.d.	50-100 mgm. b.i.d.
Inversine	2.5 mgm. q.i.d.	2.5-5.0 mgm. q.i.d.

It should be restated that because of their potency and side effects, these agents are dangerous. There is considerable individual variability in dose so that their effective use requires meticulous medical supervision. Ganglionic blocking drugs should be avoided if there has been a recent cerebrovascular

accident, myocardial infarction, or azotemia. Prostatic hypertrophy and pyloric stenosis constitute special contraindications because of the danger of aggravating existing obstruction in these regions.

HYPERTENSIVE CRISIS OR ENCEPHALOPATHY

The most acute form of hypertension necessitating immediate emergency treatment has been termed hypertensive crisis or encephalopathy. Patients may have diastolic pressures of 140 mm. Hg. or greater, papilledema and signs of impaired cerebral function or even localizing neurological signs. Great caution should be used in the employment of anti-hypertensive drugs, since too precipitous a fall in blood pressure may be harmful to the patient by reducing the blood flow to vital organs. In the presence of neurological changes suggestive of a cerebrovascular accident, a drug of moderate potency is therefore desirable. We have found the agent of choice to be Hydergine, a dihydrogenated ergot preparation. The recommended dose is 0.6 mgm. intramuscularly every 4 to 6 hours, omitting a dose if the systolic blood pressure is lower than 200 mm. Hg.

An alternate agent for the treatment of hypertensive crisis is reserpine given intramuscularly in a dose of 2.5 to 5 mgm. The gradual reduction of blood pressure which this drug produces over a period of 2 to 4 hours offers a margin of safety possibly by permitting the cerebral circulation to adjust better to the lowered perfusion pressure. Though less satisfactory, Veriloid may be given intramuscularly in a dose of 1 mgm. every 4 to 6 hours.

The use of intravenous hexamethonium has been discussed previously. In our experience this presents so many hazards that it should be reserved for the patient who is refractory to other anti-hypertensive drugs.

SURGICAL TREATMENT OF HYPERTENSION

It is important to know when medical treatment should be discontinued and surgical treatment performed. When the severely hypertensive patient fails to respond to highly potent anti-hypertensive drugs used at optimal dosage, then surgery should be considered. Continuation of an ineffective medical program frequently results in further vascular damage which will

make the patient an unsatisfactory candidate for surgery.

Contraindications to surgery include (1) age beyond 55 years, (2) blood urea nitrogen of more than 20 mgm. per cent or phenol-sulfonphthalein excretion of less than 15 per cent in the first 15 minutes and (3) myocardial infarction or cerebrovascular accident within the past six months. It is unwise to recommend discontinuing medical treatment in favor of operation unless a skilled and integrated medical-surgical team is available. Such a team has been active in the Hospital of the University of Pennsylvania for the evaluation of sympathectomy and related operative procedures.

The failure of thoracolumbar sympathectomy to produce uniformly a sustained improvement in blood pressure and the tendency toward relapse of blood pressure after one year, have provided a stimulus for our exploring the effectiveness of combined sympathectomy and adrenalectomy in the treatment of severe hypertension.⁵

During the past six years we have studied the effects of combining total or subtotal adrenalectomy with subdiaphragmatic sympathectomy in 148 patients.⁶ This procedure appears to be followed by less post-operative morbidity and disability, and gives results comparable with the more extensive sympathectomy without, as yet, evidence of relapse. Thirty-nine per cent of severely hypertensive patients subjected to this combined surgical operation have shown an excellent clinical response. In an additional 16 per cent, the result has been considered fair. There has been encouraging improvement with respect to blood pressure levels, heart size and ocular fundi. Relief of congestive heart failure, angina pectoris, and headache has also been gratifying. We have encountered no great difficulty in the management of adrenal cortical hormone replacement after adrenalectomy; most patients requiring 25 to 50 mgm. of cortisone, 2 mgm. of desoxycorticosterone (DCA) and 3 to 6 grams of salt daily. Currently we are replacing DCA and salt with 9-alpha-fluoro-hydrocortisone in a dose of 0.1 mgm. daily.

This is a potent mineralo-corticoid with respect to salt and water retention.

SUMMARY

The management of the hypertensive patient has been discussed and stress placed on special features relative to selection of therapy according to the severity of the disease. Emphasis is made on the detection of patients with specific forms of hypertension at the time of the initial examination.

Treatment of essential hypertension is directed not only toward lowering the blood pressure, but also of preventing or halting progressive vascular damage to vital organs.

It is emphasized that the drugs most potent in lowering blood pressure are those most fraught with dangerous side effects and that the mildest drugs are the least likely to produce serious toxicity. A good working knowledge of the use of these agents is necessary for successful management of the patient with hypertension.

The indications and contraindications for surgical treatment of hypertension are discussed. Our evidence to date indicates that the combination of adrenalectomy with subdiaphragmatic sympathectomy offers advantages over thoracolumbar sympathectomy.

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PANCREATIC MORBIDITY REVIEW BASED ON FOUR HUNDRED NECROPSIES ON ADULTS

O. J. POLLAK, M.D., Ph.D.

Pancreatic disease in the adult is not readily recognized during life unless it manifests itself as fulminating pancreatitis or as primary neoplasm. Pathologists encounter pancreatic alterations rather often.

Protocols of 400 consecutive necropsies of persons older than 20 years have been analyzed to study the incidence and variety of pancreatic disease.

In 80 of the 400 patients the pancreas was found to be diseased either on gross or on microscopic inspection. The average age of these 80 patients was somewhat higher than that of the total group. The number of white females was higher and that of Negro males lower among the 80 patients with pancreatic alterations than among the total series of 400.

In 14 patients (3.5% of 400, or 17.5% of 80) pancreatic disease was the primary cause of death. (See Table 2) In one of these patients recurrent hemorrhagic-suppurative pancreatitis resulted in fatal peritonitis. In one instance pancreatic disease was indirectly responsible for death: The patient died of diabetic necrotizing renal papillitis. Of the 65 patients in whom pancreatic disease proved not fatal, 34 died of cardiovascular disease, 13 (in addition to 5 primary pancreatic neoplasms) died of neoplastic disease and 22 died of miscellaneous causes.

TABLE 2
CAUSES OF DEATH IN 80 PATIENTS
WITH PANCREATIC DISEASE

1. Acute pancreatitis	3	§
2. Recurrent pancreatitis	3	§
3. Adenocarcinoma of pancreas	5	§
4. Adenocarcinoma of prostate	1	
5. Adenocarcinoma of sigmoid colon	1	
6. Adenocarcinoma of rectum	3	*
7. Adenocarcinoma of stomach	2	*
8. Fibrosarcoma of stomach	1	*
9. Epidermoid carcinoma of esophagus	1	
10. Epidermoid carcinoma of bronchus	1	
11. Neurosarcoma of mesentery	1	
12. Adenocarcinoma of common duct	1	*
13. Adenocarcinoma of gall bladder	1	*
14. Cardiac decompensation	5	
15. Pulmonary embolism	6	
16. Multiple visceral infarctions	1	*
17. Cerebral hemorrhage	7	
18. Cerebral thrombosis	1	
19. Coronary artery stenosis	1	
20. Myocardial infarction	12	
21. Ruptured abdominal aortic aneurysm	1	
22. Ruptured esophageal varices	1	
23. Cirrhosis of liver	2	
24. Hepatic coma	1	
25. Diabetic acidosis and coma	4	
26. Diabetic necrotizing papillitis	1	
27. Uremia	1	
28. Carbon monoxide poisoning	1	
29. Shock due to bullet wound	1	
30. Miliary tuberculosis	1	*
31. Caseous pneumonia	1	
32. Bronchopneumonia	3	
33. Bacterial meningitis	2	
34. Septicemia	3	

§ Primary cause of death

* Metastasis to or invasion of pancreas

Among the 400 patients there were 22 with diabetes. In 12 of these the exocrine and the endocrine portions of the pancreas were altered. (See Table 3). In 7 patients no definite changes were noted in the islets, probably due to the common and crude technics and criteria employed by us. Only

TABLE I FREQUENCY OF PANCREATIC DISEASE IN AUTOPSY MATERIAL

SEX & COLOR	TOTAL SERIES			PANCREATIC MORBID ANATOMY			
	No.	%	MIN. AV. MAX. AGE	No.	%	MIN. AV. MAX. AGE	PER CENT INCIDENCE
F W	66	17	21-61-90	20	25	20-64-90	30
F N	53	13	22-50-84	12	15	36-52-65	23
M W	199	50	20-56-89	39	49	24-65-89	20
M N	82	20	21-50-85	9	11	21-67-72	11
TOTAL	400	100	20-55-90	80	100	21-60-90	20

F, Female; M, Male; W, White; N, Negro Percentages rounded

3 patients were without alterations in the acinar portion of the organ. All three died in acidosis. However, a fourth patient who died in diabetic coma had hyaline and fibrous changes in the acinar portion besides severe hyalinosis of islets. One "diabetic" patient died of recurrent hemorrhagic pancreatitis. Judging from the course and degree of his "diabetes" defective carbohydrate metabolism was more likely due to pancreatitis than to true diabetes mellitus.

TABLE 3
VARIOUS FORMS OF PANCREATIC DISEASE
IN 80 PATIENTS

1. Acute hemorrhagic pancreatitis	1
2. Acute hemorrhagic-suppurative pancreatitis	2
3. Recurrent hemorrhagic pancreatitis	2
4. Recurrent hemorrhagic-suppurative pancreatitis	1
5. Necrotizing pancreatitis	2
6. Necrotizing-suppurative pancreatitis	2
7. Fibrocystic pancreatitis	1
8. Fibrotic interstitial pancreatitis	4
9. Fibrotic perivascular pancreatitis	1
10. Fibrotic-cirrhotic pancreatitis	1
11. Edema, hyalinosis of exocrine tissues	7
12. Edema, hyalinosis of endocrine tissues, only	3
13. Steatosis; involving at least 2/3 of organ	19
14. Hemorrhage, interstitial, traumatic	6
15. Abscesses, metastatic	1
16. Tubercles, metastatic	1
17. Papilloma, ductal	1
18. Adenocarcinoma, primary	5
19. Adenocarcinoma, secondary	4
20. Fibrosarcoma, secondary	1
distended or cystic ducts	
diabetic patients	

Although not all types of pancreatic morbid anatomy which occur in adults were represented, a good variety of conditions was encountered in our material. The etiology of these disorders was sometimes obvious but in many instances it could not be ascertained.

TABLE 4
ETOLOGY OF PANCREATIC DISEASE IN ADULTS

A. Traumatic lesions
1. accidental (mainly hemorrhage)
2. surgical (mainly edema)
B. Circulatory lesions
1. functional (vagus irritation)
2. organic
a. stasis (edema)
b. hypertensive (edema, hyalinization-islets)
c. atherosclerosis (occlusive, constricting)
d. thrombosis (infarction)
e. embolism ("apoplexy")
f. polyarteritis nodosa
g. periarteritis (fibrosis)
C. Tryptic lesions
1. malformations
a. common channel (reflux of bile)
b. duodenal diverticulum (duodenopancreatic reflux)
2. ampulla (all causing stasis of secretions)
a. spasm
b. edema

- c. sialolith
- d. inflammation (chemical)
- e. neoplasia (papilloma; adenocarcinoma)
- 3. ductal (all causing stasis of secretions)
- a. epithelial metaplasia (epidermization)
- b. edema
- c. sialolith
- d. inflammation (chemical)
- e. stricture, compression, obstruction
- f. neoplasia, (adenoma, cystadenoma, papilloma; fibroma, myxoma, lipoma, chondroma, lymphangioma; endothelioma, adenocarcinoma (I, II), sarcoma; islet adenoma)
- D. Bacterial-toxic lesions
- 1. ductal (non-specific)
- 2. hematogenous (non-specific, tuberculous, luetic)
- 3. allergic
- 4. toxic (alcohol, neoarsphenamine, anesthetics)
- E. Metabolic lesions
- 1. steatosis (lipomatosis)
- 2. hydropic swelling (intracellular edema)
- 3. amyloidosis
- 4. hemosiderosis
- 5. "diabetic" (islet edema, hyalinosis, fibrosis, hydropic change of beta cells, degranulation or vacuolization of alpha cells, reduplication of basement membrane, loss of islet tissue; combinations)

Of the 80 patients with pancreatic alterations 24 had disease of the liver or bile passages (cirrhosis, 4; chronic hepatitis, 4; acute hepatitis, 1; steatosis, 1; cyanosis, 2; chronic cholangitis, 1; calculus cholecystitis, 8; adenoma of gall bladder, 1; adenocarcinoma of gall bladder, 1; adenocarcinoma of common duct, 1). The coincidence of pancreatic disease with liver-bile disease exceeds the frequency of liver-bile alterations in the total necropsy material. Obesity was prevalent especially among women with pancreatic steatosis. This accounts for the percentage increase of women among the 80 patients with pancreatic morbidity compared with the number of women in the total series. Only in ten per cent (8) of the 60 patients was there a definite history of alcoholism; the total number of alcoholics was most likely higher. Hypertension was frequent among the 80 patients. The overlap with vascular disease, namely with atherosclerosis, was marked. In five patients with pancreatitis thrombosis of the pancreatic arteries was present. A sixth patient whose pancreas was almost completely replaced by fatty tissue also had thrombi in the pancreatic arteries, coinciding with coronary thrombosis. Twelve patients with pancreatic alterations died of myocardial infarction due to coronary thrombosis. Coinciding coronary and pancreatic atherosclerosis was present in 52 of the 80 patients in varying degrees, of course. The

number of patients who died of neoplasia was rather high but the number of patients with pancreatic alterations who died of cardiovascular disease was even higher.

The disproportion between clinical and anatomical statistics on the frequency and variety of pancreatic disease is marked. Pathologists could increase their figures if they would study multiple sections from various segments of the pancreas in every instance and employ more refined histologic and histochemical methods. Since signs and symptoms of pancreatic disease are very often indefinite or mild the clinician will overlook many cases unless laboratory tests of pancreatic function become as much a part of his routine as tests for urinary and blood glucose.

TABLE 5
LABORATORY TESTS OF EXOCRINE
PANCREATIC FUNCTION

- A. Duodenal fluid studies
 - 1. Fasting
 - 2. After stimulation
 - a. olive oil
 - b. secretin
- B. Absorption tests
 - 1. gelatin . . . plasma glycogen
 - 2. casein-I . . . fecal and urinary I
 - 3. cod liver oil . . . serum vitamin A
 - 4. neutral fat . . . chylomicron count
- C. Serum enzymes
 - 1. Amylase
 - 2. Lipase
- D. Urine enzymes
 - 1. Diastase
- E. Feces studies
 - 1. enzymes
 - 2. fat and nitrogen assays
 - 3. microscopic study

Duodenal fluid studies include measurement of volume, pH, viscosity, bile concentration, quantitative assays of amylase, lipase, protease, carboxypeptidase, and chymotrypsin. Collection of the material requires skill. Refrigeration of the fluid is essential to preserve the enzyme pattern. Dilution with gastric fluid and bile causes alteration in volume, color and reaction. Stimulation of flow after intraduodenal instillation of olive oil and intravenous injection of secretin are, at present, research procedures.

Absorption tests are gaining in popularity. On ingestion of gelatin, plasma glycogen rises sharply in healthy persons but not in patients with pancreatic disease.—Recovery of iodine in feces and urine after intake of casein labeled with I^{131} can be used as a pancreatic function test.—Oleum percomor-

phum taken by mouth causes serum Vitamin A to rise.—The plasma chylomicron count increases after fatty meals, in healthy persons. No increase is found in patients with pancreatic insufficiency.

Serum amylase is the most commonly employed test for pancreatic disease. Increase is prompt and characteristic in the acute disease with impairment of flow of secretions. When the pancreas is non-functioning or where the acini are atrophied, serum amylase may drop below the normal level. Extrapancreatic enzyme production in salivary glands and liver should be considered. After the first 24 hours of acute disease determination of serum lipase becomes the preferred test. By using tributyrin instead of olive oil as the substrate the test can be performed fairly rapidly.

Urinary diastase which is identical with serum amylase can be measured easily. Normal renal function is a prerequisite since impaired renal function can cause the serum level to rise. The limitation of this test lies in the variable urine volume and concentration.

Determination of pancreatic enzymes in feces has little value either, quantitative assay of fat to evaluate the degree of steatorrhea, or of nitrogen to measure the degree of azotorrhea is a valuable research method. Such assay is most useful in rating the efficacy of special diets and of pancreatin medication. Gross examination of stool specimens, using one's nose as well as eyes, replaces many a laborious chemical assay. Microscopic examination of feces is by far the simplest and most informative test available.

A pathologist's advice to clinicians to include gross and microscopic examinations of feces among routine laboratory procedures might be acceptable. His suggestion to modify the treatment of pancreatic disease and to instigate such regimen upon the slightest suspicion of pancreatic insufficiency might be considered presumptuous. However, one can hardly refrain from sharing clinical and anatomical observations, laboratory findings and results of animal experiments conducted in recent years.

In animals, hepatic steatosis precedes the deposit of lipids in the arterial wall. In-

ability of the liver to synthesize the various protein fractions in proper ratio or allow transfer of methyl groups for the formation of phospholipids results in plasmatic dyscolelloidity. Lack of stabilizing albumin and lecithin facilitates precipitation of cholesterol-bearing lipoprotein molecules. Lipotropic medication allows liver cells to resume normal function. Animals in whom pancreatic tissue is destroyed by ethionine or guanidoacetic acid die in hepatic coma. Effects of these chemicals can be counteracted by methionine. Animals in whom pancreatic ducts have been ligated die promptly of hepatic failure unless treated extensively with pancreatin. The survival rate of animals with ligated pancreatic ducts is far better if antibiotics, especially sulfasuxidine or aureomycin, are added to the diet to depress bacterial amine formation and thus lessen the functional load of the

liver. These antibiotics have been shown to prevent experimental liver cirrhosis. Results of this research already have been used advantageously to treat patients with kwashiorkor or mucoviscidosis.

Thus, in man, as in the animal, treatment should be directed toward promotion of regeneration of liver cells and pancreatic cells. This can be accomplished through the use of a high protein—high vitamin diet, lipotropic drugs, pancreatin and antibiotic therapy. Therefore this regimen seems to be at present the preferred treatment for interrelated pancreatic, hepatobiliary, and vascular diseases.

Pathologist, Kent General Hospital, Dover, Milford Memorial Hospital, Milford, Beebe Hospital, Lewes, Del., Assistant Prof. Path., The Hahnemann Medical College, Philadelphia, Pa.

This study is a byproduct of research grants from (a) The Schenley Laboratories, Inc., for study of lipotropic drugs, (b) The A. H. Robins Co., Inc., for study of pancreatin, and (c) The National Heart Institute, N.I.H., no. H-2534, for research in the cardiovascular and related fields.

WOMAN'S AUXILIARY

Last month, I attempted to discuss a few of our committees and their functions. With the New Year, I feel that it is an appropriate date to review many matters pertaining to our State Regime. I have found that attitude flexibility and adjustment to an ever changing pattern of activity is essential. The following is a list of the "Doings of Your President" and personal observations which I sincerely trust will be of interest—

October 20-21-22—In company with Mrs. J. M. Barsky, Sr., Program Chairman, I drove to Haddon Hall, Atlantic City, to represent Delaware at the meeting of the Woman's Auxiliary to the Pennsylvania State Medical Association. They are a very busy and interesting group.

The Workshop on Teen Age Nutrition was well presented. The importance of an educational program was stressed with information given on the nutritional values of certain foods, better meal planning, school lunches, and diets for teen agers.

Home Makers Service, a non-profit agency, in New Jersey, was a novel idea to me. Trained, mature women are placed in a household where mother or father is ill and assistance is needed. They serve a minimum of two hours or a maximum of six hours daily. These home makers are

carefully screened and are given an instruction course at Rutgers University. Imagine the value of this person in the home of an aged couple who are not able to shop for food or even prepare a well balanced meal.

A Safety Skit, entitled "Your Bonnet With The Hazards On It," was presented by members, modeling hats, depicting "pitfalls" around the home. A traffic film and farm safety slides were also shown.

At the delightful tea, the past presidents created a striking portrait effect as each stepped into a large frame, wearing her inaugural gown.

October 31st—To Washington, D. C. and the Tri-State Hospital Meeting held at the Shoreham Hotel. Five different Hospital Auxiliaries presented their most outstanding money making project. Delaware was represented by a Junior Board Member from the Kent General Hospital, explaining their Junior Board Follies project.

November 1st—Attended the Institute at the Wilmington Armory on Medical Management of Casualties in Disasters. It is imperative that we be alert today to be alive tomorrow.

November 13th—Attended the regular monthly meeting of the Woman's Auxiliary to the Delaware State Hospital and the

Governor Bacon Health Center, of which I am pleased to be a member. Dr. Fritz Freyhan spoke of the new Research Building and the program that he will direct there.

November 21st—To the Hotel duPont's Gold Ball Room to represent the Auxiliary at the annual Christmas Seal Luncheon. This Delaware idea has become an American tradition all because of the faith, courage, and perseverance of Miss Emily P. Bissell.

November 22nd-December 2nd — By plane, with my husband, to Seattle, Washington, and the Clinical Session of the American Medical Association. Washington hospitality was most evident at all times. Some of the activities included, and I enjoyed, were—

1—A "Trip to the Orient."—Luncheon in true Oriental manner—chopsticks, gifts, and a fashion show of Western clothes.

2—A ferry trip to the Bremerton Navy Yard, a visit to the U. S. S. Missouri, and lunch at the Officers Club.

3—A trip to the Snoqualmie Ski Area and a chairlift to the very top of the mountain.

4—Delightful concert by the Seattle Symphony Orchestra.

5—The most glamorous event was the dinner given the Delegates to the American Medical Association and their wives. Salmon from Washington and potatoes from Idaho were enjoyed by all.

December 6th—State Executive Meeting at my home. All committee reports showed much interest and planning. A revised letter to help acquaint graduating high school seniors with the advantages of a career in nursing was presented, by Mrs. George Eriksen, and approved.

The program included a report, by Mrs. Otkar Pollack, on the Migrant Labor Conference held in Dover. Many factors such as: Welfare of Children, Health, Sanitation,

and Housing are involved but not understood by many citizens of Delaware.

Mrs. Douglas Gay reported on the Disaster Institute and future program plans.

December 10th—To the Bissell Sanatorium Auditorium and the Home Safety Institute, sponsored by the Delaware State Board of Health and the Delaware Safety Council. We must all strive to stimulate and encourage education to safeguard health through safety, beginning at the home level. Carelessness, overwork and fatigue are the demons which harass the housewife and tired husband. "Do it yourself projects" are not always as profitable as the term implies.

December 12th—To the Mental Health Association of Delaware to preview several Mental Health films. Two films are shown each Wednesday at noon, and they have been well received. The cinescope of the "March of Medicine," depicting the treatment of the emotionally disturbed child, and narrated by Mr. Ben Grauer, will be presented on January 30th. The "in-patient" aspect of treatment was taken at our own Governor Bacon Health Center.

December 13th—To the meeting of the Woman's Auxiliary to the Delaware State Hospital and Governor Bacon Health Center. A tour of the main building's second and third floors revealed the remarkable changes that have taken place. Everything is new, from the plumbing to the furniture. It was quite evident that thoughtful planning and much effort were responsible for the improvements.

December 13th—To the Tower Hill School Auditorium at 8:00 P.M. for the premiere of a play entitled "Return to Thine Own House," presented by the American Theatre Wing. The one hour play deals with the readjustment of a former mental patient to his home, job, and social life. Its dramatic quality and its human appeal is recommended.

Mrs. H. Thomas McGuire,
President

+ Editorials +

DO AS I DO—

The New Castle County Medical Society recently resolved to encourage each of its members to seek periodic physical examinations by the physician of his or her choice. The immediate response was excellent and confirmed the opinion that many physicians do not have periodic checkups merely because of procrastination.

The periodic health examination is the cheapest form of life insurance available. It is unbelievable that those physicians who have not yet signified their willingness to comply are against periodic examinations in principle. Let us all, therefore, enter into the spirit of this project. Be examined wherever and by whomever you wish—but be examined.

PRESIDENT DWIGHT H. MURRAY—

Under ordinary circumstances The Journal does not publish material usually

found in other journals. Fully realizing that Doctor Murray's address will be widely published, it is reprinted here because of its obvious importance and with the thought that through this medium it might possibly be read by some individual who otherwise would not see it.

EDITORIAL ADVISORY BOARD—

This is a new Board appointed by the President of the Medical Society of Delaware. The sole function of this Board is to stimulate interest in the Journal and to bring in material to the Editorial Office of a type desired by the membership as a whole.

The wisdom of appointing this Board and the optimism with which the Journal faces the future is reflected in the amazing turnout of fourteen members to the first meeting. Six of these members came from Kent and Sussex County.

This is truly *your Journal*.

FREEDOM IN MEDICAL PRACTICE

DWIGHT H. MURRAY, M.D.

PRESIDENT

AMERICAN MEDICAL ASSOCIATION

Almost six months have elapsed since we last met to deliberate an act on medical affairs. The time has passed quickly, but not quietly.

The rumble of war and revolution has resounded in our ears. The din from political battles has been deafening.

All of us . . . sooner or later . . . learn that today's events do not just swirl around us, but involve each of us. As doctors we cannot get away from them by claiming that our only interest is in the sick, and that we cannot be bothered by political, social and economic problems. These matters demand attention from the doctor as well as the lawyer, the businessman, the newspaper editor, the labor leader and the worker.

If we are concerned about what happens on the international, national and local

(Delivered at the opening session of the House of Delegates at the clinical meeting of the American Medical Association in Seattle, Washington, November 27, 1956.)

fronts—and we should be—then certainly we cannot afford to be disinterested in what happens in our own area of health and medical affairs. Yet there is apathy in our ranks.

REPLACE APATHY WITH ACTIVE, UNITED PROFESSION

Today there is a greater need for a united, forceful and informed profession than ever before. We have been caught in the throes of a social revolution which demanded something for nothing. Changes have been taking place all around us, and medicine has not escaped unscathed.

For example, in a few days Public Law 569, the bill providing medical care for military dependents, becomes effective throughout the land. Contracts already have been signed with the government by the majority of our state societies. No longer can any doctor claim that this law

does not affect him. No longer can he say that government laws really are not changing the practice of medicine.

Public Law 880, better known to all of us as H.R. 7225, is another case in point. Medicine now is facing the problem of protecting the taxpaying public from abuses and of cooperating with the government to carry out the provisions of the law. The law is now on the books, and we must provide the leadership necessary to make it work as well as possible.

It was encouraging to hear Ezra Taft Benson, secretary of agriculture, say last week before the American Association of Land Grant Colleges and Universities:

"Sooner or later, the accumulation of power in a central government leads to a loss of freedom. . . Raids on the federal treasury can be all too readily accomplished by an organized few over the feeble protests of an apathetic majority. With more and more activity centered in the federal government, the relationship between the cost and the benefits of government programs becomes obscure. What follows is the voting of public money without having to accept direct local responsibility for higher taxes . . .

"If the present shift of power from state to federal authority which started 25 years ago is allowed to continue, the states may be left hollow shells."

It was encouraging to hear such comments from a member of the President's Cabinet. I only wish that all members of the official family, and more important, every member of the United States Congress, felt the same way.

The expression of this philosophy, with which medicine so heartily agrees, sounds good, but putting it into practice is the thing we are really interested in.

Today the medical profession along with business and industry is caught between those who desire to promote sound government and those who desire even more intensely to perpetuate party power. Unfortunately, in recent years a benevolent federal government appears more attractive to the voting public than the preservation of individual freedom. Medicine must do its utmost to reverse this trend.

MEDICAL FREEDOM ESSENTIAL

In my travels around the country as your representative the last 18 months, I have seen little dissension or rancor within our ranks. However, I must report that I have seen too much complacency over governmental encroachment into medical affairs. And I am deadly serious when I say to you that apathy by the few, or by the many, can be detrimental to all.

No nation can merely reap the benefits of freedom; it also must sow seeds of freedom.

In medicine the situation is the same. If an apathetic medical profession takes its freedom for granted, it will be the beginning of the end. A strong, free profession must work for freedom so that it may live in freedom. And history tells us that once medicine loses its freedom, other fields of private endeavor are immediately in danger.

I do not wish to paint a dark or distorted picture of medicine's free status and its stature in America today. But I do believe words of caution and an appeal for vigilance are in order.

The road of apathy and disunity can only lead to disorder and perhaps disintegration, and we must sound a warning to all our colleagues who don't care, or who are pulling in the opposite direction. The road of alertness, action and unity is the proper road for all of us to be traveling together.

If I had just one wish for the coming year, it would be to command the time and talents of the 160,000 physicians in the American Medical Association. I would set us all to the task of emphasizing and re-emphasizing the absolute necessity of patient and professional freedom.

PATIENT'S RIGHT TO CHOOSE HIS DOCTOR

I believe it is one of our prime responsibilities to prove to our patients that their right to choose their doctor is a most important one.

Free choice brings a bond of confidence between doctor and patient which no compulsory medical system can create. It means that the patient knows the physician will be interested in him as a person, not as just a serial number of the 2:45 appendicitis case.

For the doctor free choice means that the patient has selected him for his abilities, training, sincerity and personality. When a patient comes into my office, I know he has made a choice. And from that moment there begins a physician-patient relationship of the highest order. To me the patient is someone special, and I in turn hope I am someone special to him.

Once the patient has made his choice, the physician automatically assumes an unqualified responsibility to the patient. No system of medical care that uses a third party to bring doctor and patient together can match our kind of cooperative performance for the treatment of illness, the cure of disease and the betterment of the patient's health.

Freedom to select a doctor is part of everyone's great freedom to choose—to choose what he wears and eats; where he works and worships, and how he votes. Take away any part of this freedom and great damage is done to our democratic system.

FREE CONDUCT IN MEDICAL TREATMENT

Another freedom closely tied to freedom of choice is freedom in the conduct of medical treatment.

As the recent meeting of the World Medical Association in Havana, Cuba, Dr. Rolf Schloegell of Germany made a stirring defense of free conduct of medical treatment. He told us that the medical profession believes the attending physician alone is competent to decide what measures he deems necessary and will apply in order to bring about the desired improvement. He warned too of the danger of excessive restriction on the freedom of the patient and the attending doctor.

Yet the trend toward extending social security in the medical care field has been steady and has accelerated since the end of World War II.

The dangers of shifting responsibilities for medical care from the patient and doctor to the government are obvious. The caliber of medical care cannot be as high when both patient and doctor are dependent upon government. Initiative succumbs to dictation, and self-reliance is replaced by the crutch of government.

We do not deny that there is an area of legitimate concern by the government for the health and welfare of the people. But each year government seems to extend that area. We get some idea of this expansion from the new federal medical budget.

This year, according to our Washington Office, the average family will be paying \$54.61 for the U.S. Government's health and medical activities. And the total expenditures this year amount to $2\frac{1}{2}$ billion dollars—290 millions more than last year. Even in an over-all federal budget of 61 billion dollars, the total health cost of $2\frac{1}{2}$ billions is not insignificant. It is a billion dollars more than the cost of running the Commerce Department, half a billion more than the Agriculture Department and six times more than the Interior Department's budget.

Many expenditures obviously are necessary to keep up our unsurpassed public health standards, and research may pay rich dividends in scientific discoveries. But there is no doubt that much money is being spent on medical activities that should not involve government participation.

The trend is to spend more and more government money on health and medical matters because it is good politics. Apparently many Americans still want to see government in the role of a big brother, dishing out so-called gifts and bargains under the guise of benevolent economic planning.

I believe it is our duty, as it is everyone else's, to combat the attitude of "what's in it for me?" and to promote the long-honored creed of "what's best for all Americans and our free society?" I think that a nation can drift into state medicine inch by inch just as surely as if the scheme were foisted upon a people overnight. The "drift" method may take longer but the result will be the same.

So it is time all of us sounded the alarm against soft and superficial security and against the invasion of personal responsibility. It is time we stood up together for militant freedom and for full rights and responsibilities of the individual.

BELGIAN DOCTORS TURN BACK GOVERNMENT

There is no better example of what a unified medical profession can do than in the story of the recent fight of the Belgian doctors against the government's proposals for a state service of medicine.

Without consulting the medical profession the Belgian government proceeded to draft rules and regulations of health to be incorporated in the nation's social security legislation. Under the proposals doctors were to sign an agreement to abide by the present rules and any later regulations. For the patient there would be the usual red tape in getting medical care.

When the Belgian doctors learned of the scheme, they met in conference with the government. They told the government what they wanted and what they would not accept. The government agreed.

For several months everything was quiet. Then the Belgian doctors suddenly read about the new health bill that the government was sending to Parliament. It was quite contrary to the earlier agreement worked out by the profession and the government. But the bill was passed quickly.

The Belgian medical profession protested and said it would not be placed under the Ministry of Labor. Instead the doctors proposed to set up their own plan of medical assistance.

Before long, the government saw that the medical profession meant business and that the doctor's plan was an attractive one. So it declared that its own bill was not in force and could not be in force without the consent of the medical profession.

To me this fight against legislative intervention in medical care is excellent evidence that the profession can defend itself if it unites to defend the basic principles of freedom and if it offers constructive proposals. By using the Belgian national motto, "in union there is strength," the medical profession showed doctors everywhere that dangerous government plans can be turned aside by the strong.

I also read recently in the Journal of the World Medical Association of the fight of the medical profession of Malta against a British government scheme to introduce a full-time salaried medical service, without

the right of private practice, on an island dependency of Malta. Here again the doctors reacted with unity and strength, and successfully thwarted the government's plan.

There is a lesson in these stories from Belgium and Malta. They prove that a unified profession has a great political power for good — the good of the patient, the doctors and the nation.

CONFIDENCE AND UNDERSTANDING NEEDED

While we are developing unity within our own ranks, I believe it is equally important to continue to build up the confidence and respect of our patients and to make our legislators aware of the necessity for freedom in medical practice.

Let us never reduce the quality of service we render to our patients, and never lose the personal touch in medicine. Where there is any opportunity to improve upon our medical care, let us seize it and show our abilities to do an outstanding job. Satisfied patient-customers will give us deserving support when we need it.

We also should realize that the destiny of medicine can be determined to a large degree in the halls of Congress. If this be true, then it is even more important that we take an even greater interest in those who elect the Congressmen. Sympathetic understanding of our position by federal legislators through the voting public will be an insurmountable deterrent to the forces supporting state medicine.

The day has come, gentlemen, when we can no longer look upon medical economics and social changes merely as issues to be considered during our limited leisure hours. Our interest in them cannot be superficial or intermittent.

We now must pay daily attention to these matters. Medical socio-economic affairs can no longer be just incidental with us. They must be a vital part of our life and of our profession.

Each of us, I believe, should dedicate himself to the words included in the oath of office taken by Presidents of the A.M.A.

"I shall champion the cause of freedom in medical practice and freedom for all my fellow Americans."

As doctors, representatives to the A.M.A. and as spokesmen for the A.M.A., let's remember these words and live by them. And to alter a phrase of President Lincoln's only slightly: Let's make common cause to keep the good ship of medical freedom on this voyage, or nobody will have a chance to pilot her on another voyage.

BOOK REVIEWS

CLINICAL PATHOLOGY. Application and Interpretation. By Benjamin B. Wells, M.D., Ph.D. Director of Clinical Investigation, The Lynn Clinic, Detroit. Former Professor of Medicine and Chairman of the Department of Medicine, Creighton University School of Medicine, Omaha. Cloth. \$8.50. Pp. 448 with 25 illustrations. W. B. Saunders Company, Philadelphia-London, 1956.

This book as the title states is primarily a guide in the application and interpretation of clinical laboratory studies. It is offered to physicians and medical students so that they may select, apply, and interpret all laboratory methods according to the needs of the patient. The purpose of the book is entirely practical and just enough theory and methodology are included to give proper meaning to the procedures or to define their limitations. Emphasis is placed on the fact that laboratory procedures serve only as aids in diagnosis and on the fact that the elimination of unnecessary tests in clinical problems makes for a better understanding of the clinical laboratory and also for the better practice of medicine.

The book is divided into ten chapters. These include chapters on the major systems, a chapter on the infectious diseases, special chapters on clinical laboratory studies in surgery and obstetrics, and a final chapter on laboratory procedures. The first chapter on Infectious Diseases presents a wealth of material in concise form of the common laboratory procedures performed and their interpretation in the various diseases. Also included is a discussion of the virus and rickettsial diseases and the newer tests used in their diagnosis. There is a discussion of the Treponema Pallidum Immobilization Test for syphilis. The chapters on diseases of the Gastrointestinal System, the Cardiovascular System, the Respiratory System and the Urinary System present the diseases and develop them only as they pertain to the more urgent and

frequent needs of medical practice. The material is arranged exactly as the physician uses it. Beginning with a clinical problem, useful laboratory tests are named and discussed. The two chapters on Diseases of the Blood and the Metabolic and Endocrine Disorders make frequent use of charts for the orderly presentation of tests used in differential studies.

Of special interest to the Obstetrician and the Surgeon are the chapters on the laboratory studies commonly used in these specialities. Tests used in electrolyte studies, water balance, and acid-base studies are discussed. The last chapter on Laboratory Procedures present those procedures that can easily be performed in an office laboratory.

The book is strongly recommended for the library of all physicians whether they are in general practice or in one of the specialties and for medical students. The intelligent use of laboratory data is invaluable.

J. V. C.

DISEASES OF THE HEART. By Charles K. Friedberg, M.D., Attending Physician, The Mount Sinai Hospital, New York; Associate Clinical Professor of Medicine, College of Physicians and Surgeons, Columbia University. 1161 pages with 157 illustrations. Cloth. 1956. 2nd edition. W. B. Saunders Company, Philadelphia. \$18.00.

Your reviewer had the privilege of reviewing the first edition of this book in 1950 and said that it was "without doubt the best text on the subject in the English language". The new edition is better than the first.

The text has been lengthened by the inclusion of a section on graphic methods of examination. This seems to be an improvement over the first edition where methods were discussed only in the sections describing specific diseases. There are twice as many illustrations and, in general, they are of better quality than those in the first edition. In keeping with newer ideas in typography, the type is set in double column for ease in reading.

Not infrequently the author of a successful text will coast along with the first edition, merely adding a few notes from time to time. Those who know Doctor Friedberg realize that he could not do this and the work expended upon this edition has

been equal to that used in writing a new book. It is amazing that some of the material found in this text has just reached the stage of journal publication!

This book is without doubt the best text on cardiology in existence and should be owned by every physician who sees a cardiac patient in practice.

A. H. C., Jr.

PHYSICAL DIAGNOSIS by Ralph H. Major, M.D., Professor of Medicine and the History of Medicine, and Mahlon H. Delp, M.D., Professor of Medicine, University of Kansas. 358 pages, with 536 illustrations. 1956. 5th edition. W. B. Saunders Company, Philadelphia. \$7.00.

This book is complete, concise and alive with excellent illustrations which point up admirably the significance and importance of the many details and signs in physical diagnosis. Its short but complete summary of good history taking further emphasizes the importance of detail and accuracy in the physical examination.

Books on this subject in the past have tended to be dry and uninteresting. Here, however, the student's interest is not only aroused but maintained.

L. B. F.

PRINCIPLES OF CLINICAL ELECTROCARDIOGRAPHY. By Mervin J. Goldman, M.D., Assistant Chief of the Medical Service and Cardiologist, Oakland Veterans Administration Hospital, Oakland and Assistant Clinical Professor of Medicine, University of California School of Medicine, San Francisco. 310 pages, paper. 1956. Lange Medical Publications, Los Altos, California. \$4.50.

This book is replete with excellent information. The outstanding feature is the large number of illustrations, approximately two per page. This alone puts the book in a class by itself.

To make possible such profuse and excellent illustrations at a reasonable price it was necessary to reproduce the book by the offset process. This resulted in the only weak feature — type size too small to permit prolonged study. It is hoped that this minor fault will be corrected in subsequent editions.

This book is recommended without reservation for anyone interested in electrocardiography.

A. H. C., Jr.

The following article appeared as a guest editorial in the August issue of the Pennsylvania Medical Journal. It is reprinted here in its entirety by courtesy of Dr. Shelley and the editor of the Pennsylvania Medical Journal.

ON READING A MEDICAL PAPER

Medical societies are in a most luxuriant phase; more meetings are being held than ever before. In many metropolitan areas, a little determination can place a physician in at least one scientific meeting a day. With this accelerated state has come increased opportunities for presenting medical observations to fellow doctors, i.e., *reading a medical paper*. It has been my feeling that the technique of this significant activity has not received enough attention. One reason is that the audience is largely inarticulate, at least beyond the formality of applause. As a frequent member of this medical audience, I would like to record some thoughts I have had on reading papers. These are personal views, but I have reason to believe they may be commonly held, although infrequently expressed.

The first thing I plead is that I not be overwhelmed by an avalanche of data, observations, and ideas. Many speakers simply crush the average listener with literally hundreds of new facts, all carefully posted on slides. The listener refusing to operate on a Univac level turns off his motors and moves over to a pleasant autistic realm. The pernicious habit of presenting techniques and detailed data appears to have developed because man is capable of reading aloud at a rate of 200 words per minute. This permits the speaker, if he reads a manuscript, to release the bulk of his findings to the audience. With the use of slides hundreds of numerical figures can be added. All in all, it is a fine *tour de force*, but it often leaves the audience exhausted yet uninformed, or worse, indifferent to the speech.

I would urge that medical talks be *talks*. As such, they can effectively transmit ideas and leave the audience informed and stimulated. I have long noted how a colleague can enthrall you with his experiences as recounted over the hospital dining room table,

yet these same experiences are boring when read as a formalized paper in staff conference. The need to be scientific and precise can at times have a most deadening influence. Speakers should recognize that the audience is their friend. Give a friendly narrative account, therefore. Remember, no one can truly evaluate your findings on the basis of a talk. He must turn to the published paper for the detailed prolonged study of methodology and data. The short speech serves solely to transmit your singular idea on the topic. The longer speech should be used to present a broader concept or scheme of things rather than the showy display of even more data in depth.

Be sympathetic to the fact that the live audience has no real power to skim or skip, so that the speech should be a significant one. Too often speakers request or accept program time for the presentation of data which is better never presented verbally. I refer to the negative finding, the reference data of interest to very few, and finally to the "ectopic paper" floundering before the wrong society. A brilliant address on backgammon will be poorly received by the philatelic society, although clever titling may win it a place on the program.

Finally, I will count myself fortunate at the next meeting I attend if at least one of the speakers *talk* as one who wants me to know and to feel the native simplicity of his particular idea. The idea should take precedence over the smothering data, oratory, and elegant phrasing which so often accompany the *reading of a paper*.

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MEANING: AWOL

To the Editor: The gobbledegook and abbreviations used in the federal officialese language are w.k. and much commented on. Perhaps the development of a similar but different language in our h. records is not so w.k. This new branch of the language might well be called doctoresc. It varies from h. to h. and s. to s. Pretty soon interpreters will have to be obtained by any consultant who sees a patient even in his own h. Here is a prize example from the B.H. of B.M.:

"N.B.: My impression is that the patient's M.S. while enough to produce R.V.H. by Px, has been sorely aggravated by A.S.H.D. which addition has ppt. C.H.F."

If anyone is interested, here is a glossary:
N.E.J.M. *New England Journal of Medicine*

B., M.	Boston, Massachusetts (not bowel movement)
h.	hospital
w.k.	well known
s.	service
B.H.	blank hospital
N.B.	<i>nota bene</i> (the only valid abbreviation in this letter)
M.S.	mitral stenosis, not morphine sulfate
R.V.H.	right ventricular hypertrophy
Px.	physical examination, not post-exchange
A.S.H.D.	arteriosclerotic heart disease
ppt.	precipitated
C.H.F.	congestive heart failure.

V.T.Y.
C.C.L.

(This letter was published in *The New England Journal of Medicine* on June 14, 1956 and is reprinted here by permission of the Editor.)

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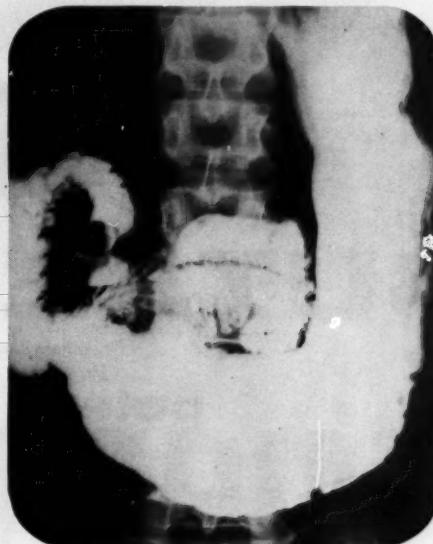
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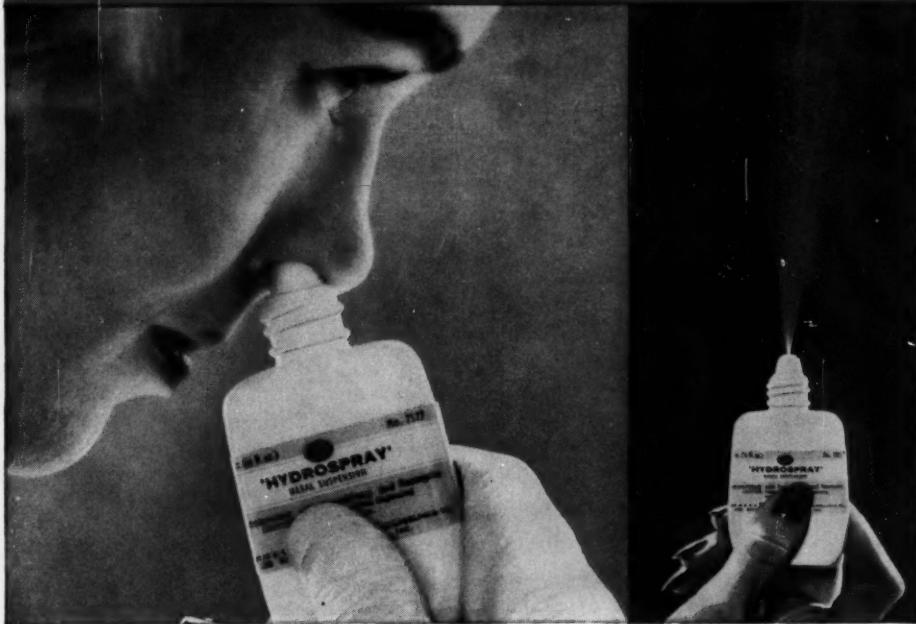
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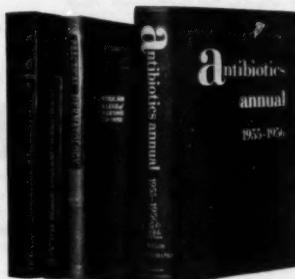
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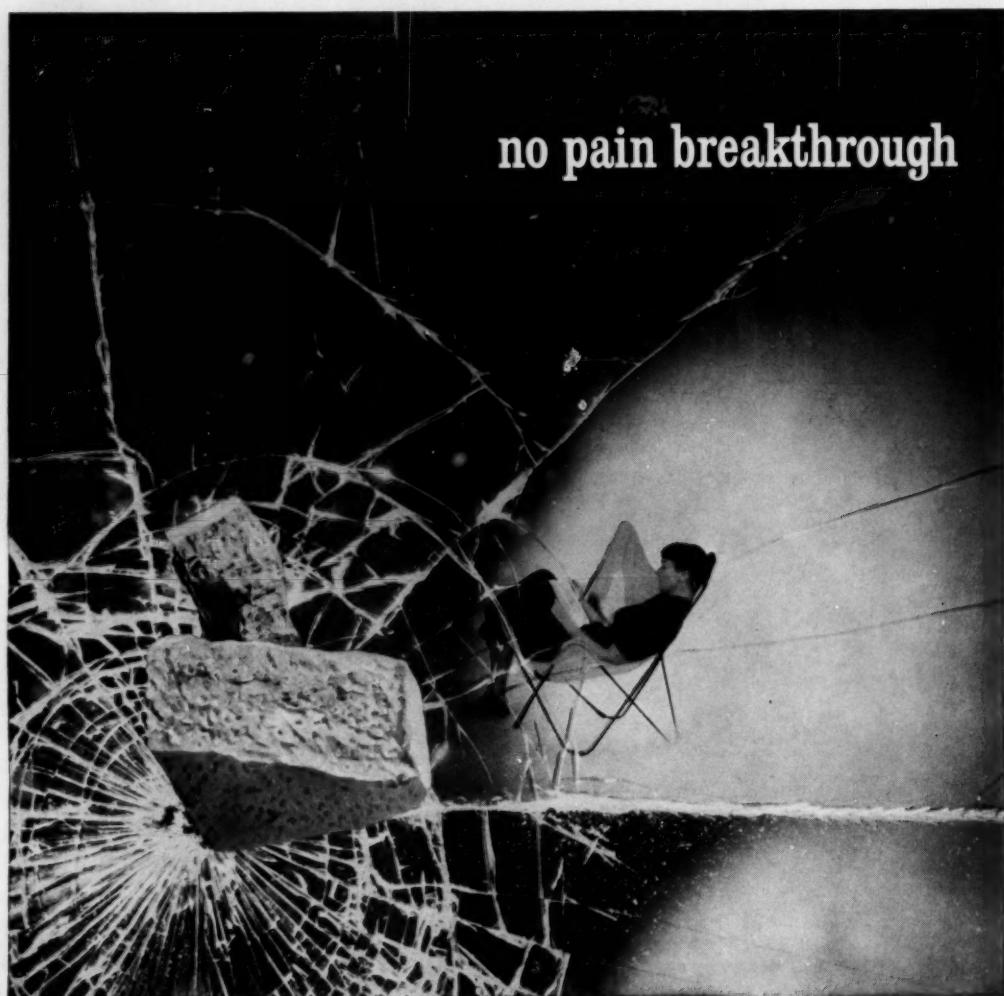
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1. Romansky, M.J., et al., Antibiotics Annual 1955-1956, p. 48,
2. Waddington, W. S., Maple, F. C., and Kirby, W. M. M., A.M.A. Archives of Internal Medicine, 1954, p. 556.

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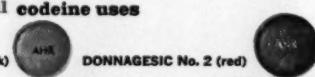
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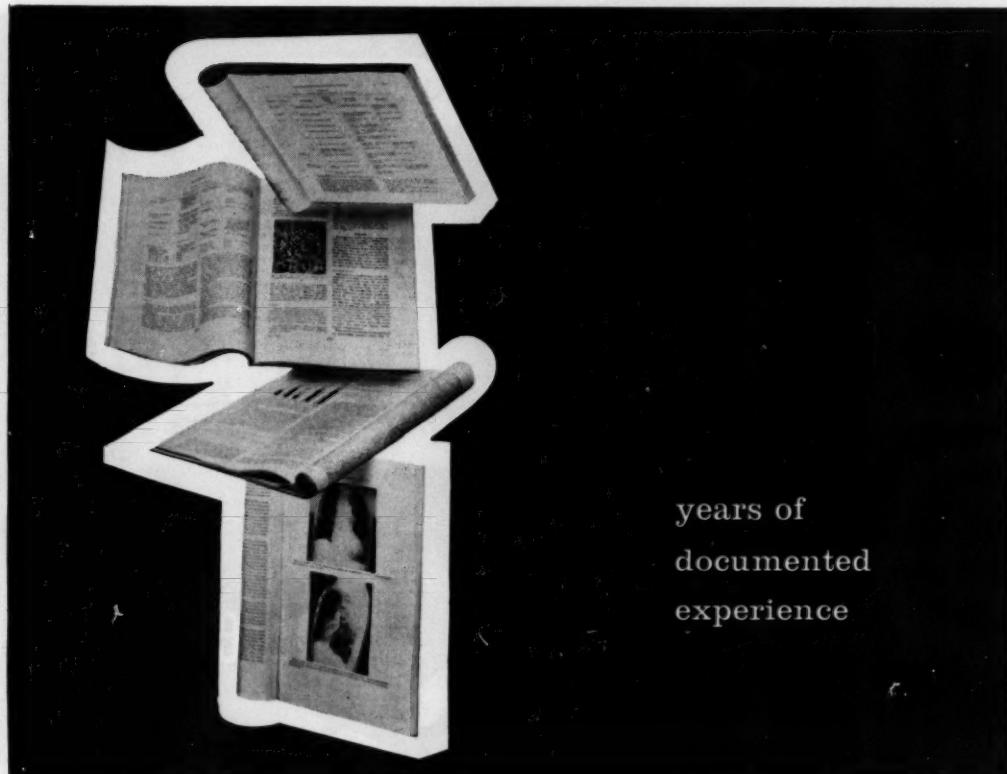
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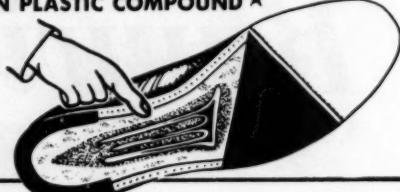
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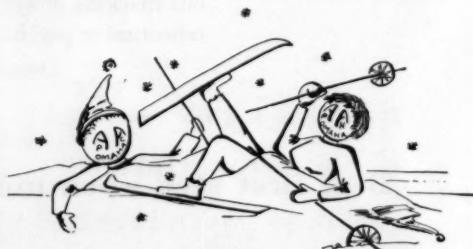


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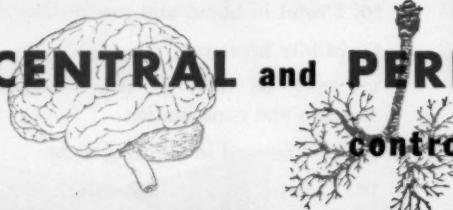
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1. The authority for any of the statements
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2. Additional information in connection with any of them . . .
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4. The nutritional story of the banana . . .
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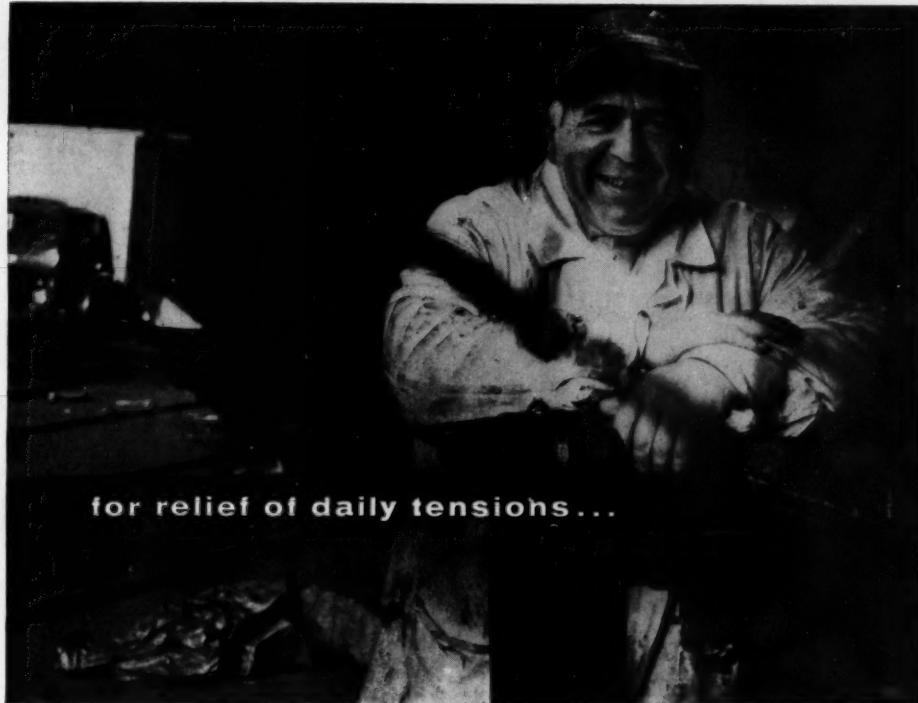
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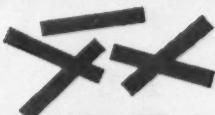
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*Ferguson, J. T.: J. Am. Geriatrics Soc. 4:1080, 1956.



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